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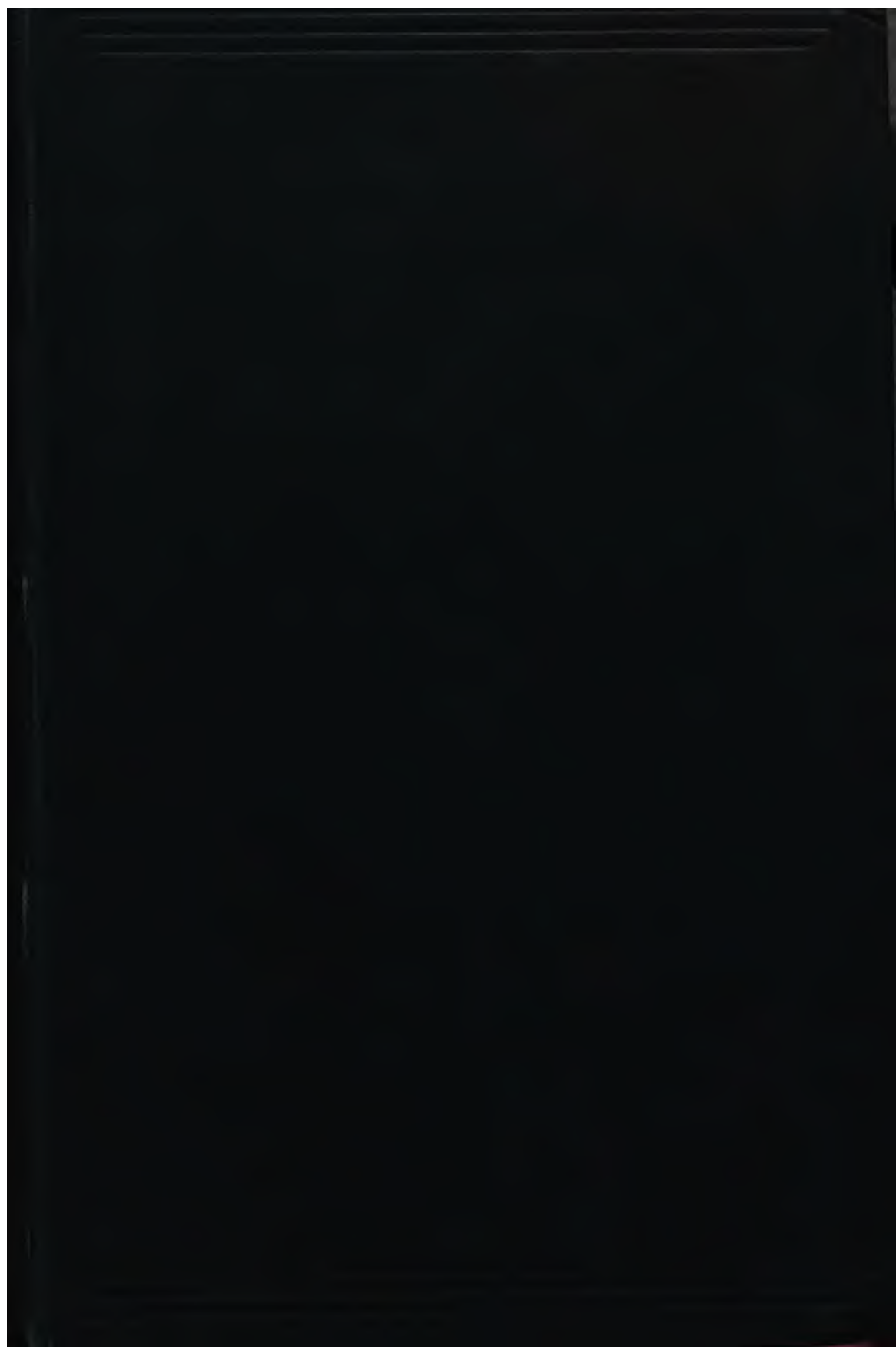
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THE
GEOLOGICAL RECORD
FOR
1879.

AN ACCOUNT OF WORKS
ON
GEOLOGY, MINERALOGY, AND PALÆONTOLOGY
PUBLISHED DURING THE YEAR.
WITH SUPPLEMENTS FOR 1874-1878.

EDITED BY
W. WHITAKER, B.A., F.G.S.,
AND
W. H. DALTON, F.G.S.

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THE position of Editor of the GEOLOGICAL RECORD has proved to be one that can be held only with great difficulty by a busy man who does not live in London, and therefore it has been kindly taken over by Mr. TOPLEY.

The Record is to be brought up to date by giving the titles only of papers, &c. for the years 1880 to 1887. Mr. Topley tells me that the portion for 1880 to 1884 is finished, and in great part printed; and so large is the amount of geological literature, that in this contracted form (without abstracts) two volumes will be needed for the five years!

The work for 1885 to 1887 is also in hand, though not in type.

Whilst allowing that Subscribers are fully entitled to the Englishman's right to grumble at the long delay, one may plead, in mitigation of sentence, that the work of Contributors, of Sub-Editors, and of Editors is unpaid.

W. WHITAKER.

August, 1887.



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- Schrift. phys.-ökon. Ges. Königsberg.*—Schriften der physikalisch-ökonomischen Gesellschaft zu Königsberg [including *Abhandlungen* and *Sitzungsberichte*]. 4to. *Königsberg.*
- Schrift. Ver. Gesch. Bodens.*—Schriften des Vereins für die Geschichte des Bodensees und seiner Umgebung. *Lindau.*
- Schrift. Ver. nat. Kenntn. Wien.*—Schriften des Vereins zur Verbreitung naturwissenschaftlicher Kenntnisse in Wien. 12mo. *Vienna.*
- Sci. Contemp.* La Scienza Contemporanea. *Messina.*
- Sci. Goss.*—Hardwicke's Science Gossip. *London.*
- Sci. Trans. R. Dublin Soc.*—Scientific Transactions, Royal Dublin Society. *Dublin.*
- Scott. Nat.*—The Scottish Naturalist. *Perth.*
- Ser. Cart. Géol. Belge.*—Musée Royal d'Histoire Naturelle de Belgique. Service de la Carte géologique du Royaume. *Bruzelles.*
- Sitz. Ges. Beförd. gesamt. Nat. Marburg.*—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg. *Marburg.*
- Sitz. Ges. nat. Freunde Berlin.*—Sitzungs-Bericht der Gesellschaft naturforschender Freunde zu Berlin. *Berlin.*
- Sitz. Isis Dresden.*—Sitzungs-Berichte der naturwissenschaftlichen Gesellschaft Isis in Dresden. *Dresden.*
- Sitz. k. Ak. Wiss. Wien, math.-nat. Cl.*—Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, mathematisch-naturwissenschaftliche Classe. *Vienna.*
- Sitz. k.-bay. Ak. Wiss.*—Sitzungsberichte der mathematisch-physikalischen Classe der königlich-bayerischen Akademie der Wissenschaften zu München. *Munch.*
- Sitz. k. böhm. Ges. Wiss.*—Sitzungsberichte der königlichen böhmischen Gesellschaft der Wissenschaften. *Prague.*
- Sitz. k. preuss. Ak. Wiss.*—Königliche preussische Akademie der Wissenschaften. Sitzungsberichte. *Berlin.*
- Sitz. Nat. Ges. Dorpat.*—Sitzungsberichte der Naturforscher Gesellschaft zu Dorpat. *Dorpat.*
- Sitz. nat. Ges. Hannover.*—Sitzungsberichte der naturhistorischen Gesellschaft in Hannover. *Hanover.*
- Sitz. nat. Ges. Leipzig.*—Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig. *Leipzig.*
- Sitz. phys.-med. Soc. Erlangen.*—Sitzungsberichte der physikalisch-medizinischen Societät zu Erlangen. *Erlangen.*
- Skand. Nat. Forh.*—Skandinavisk Naturforskerinødet Forhandling. *Copenhagen.*
- Smithsonian Mis. Coll.*—Smithsonian Miscellaneous Collections. *Washington.*
- Sprawozd. Kom. Fizyogr. Krakow.*—Akademija Umiejetnosci w Krakowie. Sprawozdanie Komisji Fizyograficznej obejmujące poglad na czynnosc dokonane w ciagu roku 187 . oraz materyjaly do fizyografii Galicyi. [Cracow Academy of Science. Reports of the Physiographical Committee.] *Cracow.*
- Students' Mag.*—The Students' Magazine of Science and Art: a Monthly Journal for Private and Class Students and Teachers. 4to. *London.*
- Sver. Geol. undersökn.*—Sveriges Geologiska Undersökning. [Swedish Geological Survey.] 4to & 8vo. *Stockholm.*

- Termész. Füzet.*—Természetrajzi Füzetek, az Állat-, Növény-, Ásvány- és Földtan Köréből. [Natural History Book for Zoology, Botany, Mineralogy, and Geology.] *Budapest.*
- Természet. Közl.*—Természettudományi Közlöny; havi folyóirat a közérdekű ismeretek terjesztésére. [Monthly Journal of Natural Science.] *Budapest.*
- Trans. Ac. Sci. New York.*—Transactions of the Academy of Sciences. *New York.*
- Trans. Ac. Sci. St. Louis.*—The Transactions of the Academy of Science of St. Louis. *St. Louis* [*Missouri*].
- Trans. Adelaide Phil. Soc.*—Transactions and Proceedings of the Adelaide Philosophical Society. *Adelaide.*
- Trans. Albany Inst.*—Transactions of the Albany Institute. *Albany.*
- Trans. Amer. Inst. Min. Eng.*—Transactions of the American Institute of Mining Engineers. *Philadelphia.*
- Trans. Amer. Phil. Soc.*—Transactions of the American Philosophical Society held at Philadelphia for promoting Useful Knowledge. 4to. *Philadelphia.*
- Trans. Amer. Soc. Civ. Eng.*—Transactions of the American Society of Civil Engineers.
- Trans. Barrow Nat. Club.*—Transactions [or Annual Report and Proceedings] of the Barrow Naturalists' Field Club. *Barrow-in-Furness.*
- Trans. Bedfordsh. Nat. Hist. Soc.*—Abstract of Proceedings and Transactions of the Bedfordshire Natural History Society and Field Club. *Bedford.*
- Trans. Bot. Soc. Edin.*—Transactions and Proceedings of the Botanical Society of Edinburgh. *Edinburgh.*
- Trans. Camb. Phil. Soc.*—Transactions of the Cambridge Philosophical Society. 4to. *Cambridge.*
- Trans. Cardiff Nat. Soc.*—Report and Transactions of the Cardiff Naturalists' Society. *Cardiff.*
- Trans. Chesterfield Inst. Eng.*—Chesterfield and Derbyshire Institute of Mining, Civil, and Mechanical Engineers.—Transactions. *London and Derby.*
- Trans. Clifton Coll. Sci. Soc.*—Transactions of the Clifton College Scientific Society. *Clifton (Bristol).*
- Trans. Conn. Ac. Sci.*—Transactions of the Connecticut Academy of Arts and Sciences. *Newhaven* [*U. S.*]
- Trans. Cumb. Assoc.*—Transactions of the Cumberland Association for the Advancement of Literature and Science. *Carlisle.*
- Trans. Devon. Assoc.*—Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art. *Plymouth.*
- Trans. Edin. Geol. Soc.*—Transactions of the Edinburgh Geological Society. *Edinburgh.*
- Trans. Essex Field Club.*—Essex Field Club, Transactions. *Buckhurst Hill.*
- Trans. Geol. Soc. Glasg.*—Transactions of the Geological Society of Glasgow. *Glasgow.*
- Trans. Hist. Soc. Lanc. Chesh.*—Transactions of the Historical Society of Lancashire and Cheshire. *Liverpool.*
- Trans. Inst. Surv.*—Transactions of the Institution of Surveyors. *London.*
- Trans. Kansas Ac. Sci.*—Transactions of the Kansas Academy of Science. *Topeka, Kansas.*
- Trans. Leicester Lit. Phil. Soc.*—Transactions of the Leicester Literary and Philosophical Society. *Leicester.*
- Trans. Linn. Soc.*—Transactions of the Linnean Society. 4to. *London.*
- Trans. Manch. Geol. Soc.*—Transactions of the Manchester Geological Society. *Manchester.*

- Trans. Micro. Soc. S. Francisco.*—Transactions of the Microscopical Society of San Francisco.
- Trans. Midland Inst. Eng.*—[Transactions of the] Midland Institute of Mining, Civil, and Mechanical Engineers. *Barnsley.*
- Trans. Nat. Hist. Soc. Northumb. Durham.*—Transactions of the Natural History Society of Northumberland and Durham. *Newcastle-on-Tyne.*
- Trans. N. Engl. Inst. Eng.*—North of England Institute of Mining and Mechanical Engineers.—Transactions. *Newcastle-on-Tyne.*
- Trans. Newbury Field Club.*—Transactions of the Newbury Field Club. *Newbury.*
- Trans. Norfolk Nat. Soc.*—Transactions of the Norfolk and Norwich Naturalists' Society. *Norwich.*
- Trans. Nov. Scot. Inst.*—Proceedings and Transactions of the Nova Scotian Institute of Natural Science. *Halifax, N. S.*
- Trans. N. Zealand Inst.*—Transactions and Proceedings of the New Zealand Institute. *Wellington.*
- Trans. Plymouth Inst.*—Annual Report and Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society. *Plymouth.*
- Trans. R. Geol. Soc. Cornw.*—Transactions of the Royal Geological Society of Cornwall. *Penzance.*
- Trans. R. Dublin Soc.*—Scientific Transactions of the Royal Dublin Society. *Dublin.*
- Trans. R. Irish Ac.*—Transactions of the Royal Irish Academy. 4to. *Dublin.*
- Trans. R. Soc. Edin.*—Transactions of the Royal Society of Edinburgh. 4to. *Edinburgh.*
- Trans. R. Soc. Vict.*—Transactions and Proceedings of the Royal Society of Victoria. *Melbourne.*
- Trans. S. African Phil. Soc.*—Transactions of the South African Philosophical Society. *Cape Town.*
- Trans. Seis. Soc. Japan.*—Transactions of the Seismological Society of Japan. *Tokio.*
- Trans. S. Midl. Inst. Eng.*—Transactions of the South Midland Institute of Mining, Civil, and Mechanical Engineers. *Birmingham.*
- Trans. S. Staff. Inst. Eng.*—The South Staffordshire and East Worcestershire Institute of Mining Engineers.—Transactions. *Dudley.*
- Trans. Watford Nat. Hist. Soc.*—Transactions of the Watford Natural History Society and Hertfordshire Field Club. *Watford and Hertford.*
- Trans. Wisconsin Ac. Sci.*—Transactions of the Wisconsin Academy of Sciences, Arts, and Letters. *Madison.*
- Trans. Woolhope Field Club.*—Transactions of the Woolhope Naturalists' Field Club. *Hereford.*
- Trans. Zool. Soc.*—Transactions of the Zoological Society of London. 4to. *London.*
- Tromsö Mus. Aarsh.*—Tromsö Museums Aarshefter. *Tromsö.*
- Trudi Obsch. Estest. Imp. Univ. Kazan.*—Trudi Obschestva Estestvoispitalelei pri Imp. Kazanskome Universitete. [Proc. Nat. Soc. Kazan Univ.] 4to. *Kazan.*
- Trudi St. Pet. Obsch. Estest.*—Trudi S. Peterburgskago Obschestva Estestvoispitalelei. [Proc. St. Petersburg Nat. Hist. Soc.] *St. Petersburg.*
- Verh. Ak. Naturf. Halle.*—Akademie der Naturforscher. Verhandlungen der K. L. C. D. *Halle.*
- Verh. bergm. Ver. Freiburg.*—Verhandlungen des bergmännischen Vereins zu Freiburg. *Freiburg.*

- Verh. Berl. Ges. Anthropol.*—Verhandlungen der Berliner Gesellschaft für Anthropologie. *Berlin.*
- Verh. k.-k. geol. Reichs.*—Verhandlungen der kaiserlich-königlichen geologischen Reichsanstalt. *Vienna.*
- Verh. nat. Ges. Basel.*—Verhandlungen der naturforschenden Gesellschaft in Basel. *Basle.*
- Verh. nat.-med. Ver. Heidelberg.*—Verhandlungen des naturhistorisch-medicinischen Vereins zu Heidelberg. *Heidelberg.*
- Verh. nat. Ver. Brünn.*—Verhandlungen des naturforschenden Vereins zu Brünn. *Brünn.*
- Verh. nat. Ver. Carlsruhe.*—Verhandlungen des naturwissenschaftlichen Vereins in Carlsruhe. *Carlsruhe.*
- Verh. nat. Ver. Hamburg-Altona.*—Verhandlungen des naturwissenschaftlichen Vereins zu Hamburg-Altona. *Hamburg.*
- Verh. nat. Ver. preuss. Rheinl.*—Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westfalens [including *Sitzungsberichte* and *Correspondenz-Blatt*]. *Bonn.*
- Verh. Ver. nat. Hermannstadt.*—Verhandlungen und Mittheilungen des Siebenbürgischen Vereins für Naturwissenschaften in Hermannstadt. *Hermannstadt.*
- Verh. Ver. nat. Unt. Hamburg.*—Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg. *Hamburg.*
- Verh. Würzb. phys.-med. Ges.*—Verhandlungen der physikalisch-medicinischen Gesellschaft in Würzburg. *Würzburg.*
- Versl. Med. Kon. Ak. Wet.*—Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen. *Amsterdam.*
- Vid. Medd. Nat. Foren. Kjöbenhavn.*—Videnskabelige Meddelelser fra den Naturhistoriske Forening i Kjöbenhavn. *Copenhagen.*
- Vierteljahrsschr. gerichtl. Med.*—Vierteljahrsschrift für gerichtlich Medicin.
- Vierteljahrsschr. nat. Ges. Zürich.*—Vierteljahrsschrift der naturforschenden Gesellschaft in Zürich. *Zurich.*
- Wiltsh. Arch. Nat. Hist. Mag.*—The Wiltshire Archæological and Natural History Magazine, published under the direction of the Society founded in that county. *Devizes.*
- Wochenschr. österr. Ing.-Arch.-Ver.*—Wochenschriften des österreichischen Ingenieur- und Architekten-Vereins. 4to. *Vienna.*
- Württ. Jahr. Stat. Landes.*—Württembergische Jahrbücher für Statistik und Landeskunde. 4to. *Stuttgart.*
- Zapiski Imp. S. Peterb. Min. Obsch.*—Zapiski Imp. S. Peterburgskago Mineralogitsheskago Obschestva. [Notices of the Imperial Mineralogical Society of St. Petersburg.] *St. Petersburg.*
- Zapiski Novoruss. Obsch. Estest.*—Zapiski Novorussiiskago Obschestva Estestvoispitatelei. [Notices of the New Russia Naturalists' Society.] *Odessa.*
- Zeitschr. allgem. österr. Apothek-Ver.*—Zeitschrift des allgemeinen österreichischen Apothek-Vereins. *Vienna.*
- Zeitschr. Bauwesen.*—Zeitschrift für Bauwesen. *Berlin.*
- Zeitschr. Berg- Hütt. Salinew.*—Zeitschrift für das Berg-, Hütten- u. Salinenwesen im preussischen Staate. 4to. *Berlin.*
- Zeitschr. berg- hütt. Ver. Steierm. Kärnten.*—Zeitschrift des berg- und hüttenmännischen Vereins für Steiermark und Kärnten. *Klagenfurt.*
- Zeitschr. deutsch. geol. Ges.*—Zeitschrift der deutschen geologischen Gesellschaft. *Berlin.*

- Zeitschr. deutsch. österr. Alpenver.*—Zeitschrift des deutschen und österreichischen Alpenvereins. *Munich.*
- Zeitschr. Ferdinand. Innsbruck.*—Zeitschrift des Ferdinandeums für Tirol und Vorarlberg. *Innsbruck.*
- Zeitschr. gesamt. Nat.*—Zeitschrift für die gesammten Naturwissenschaften. Originalabhandlungen und monatliches Repertorium der . . . Geologie, Oryktognosie, Palæontologie . . . *Berlin.*
- Zeitschr. Nat. Halle.*—Zeitschrift für Naturwissenschaften. *Halle.*
- Zeitschr. Naturwiss. k. preuss. Ak. Wiss.*—Königliche preussische Akademie de Wissenschaften. Zeitschrift für Naturwissenschaften. *Berlin.*
- Zeitschr. Kryst. Min.*—Zeitschrift für Krystallographie und Mineralogie, unter Mitwirkung zahlreicher Fachgenossen des In- und Auslandes. *Leipzig.*
- Zeitschr. Oberschles. berg- hütt. Ver.*—Zeitschrift des ober-schlesischen berg- und hüttenmännischen Vereins. *Berlin.*
- Zeitschr. österr. Ges. Meteor.*—Zeitschrift der österreichischen Ingenieur-Gesellschaft für Meteorologie. *Vienna.*
- Zeitschr. österr. Ing.- Arch.- Ver.*—Zeitschrift des österreichischen Ingenieur- und Architekten-Vereins. Fol. *Vienna.*
- Zeitschr. Reg. Bez. Cassel.*—Landwirthlich Zeitschrift des Regierungs-Bezirk Cassel. *Cassel.*
- Zeitschr. wiss. Zool.*—Zeitschrift für wissenschaftliche Zoologie. *Leipzig.*
- Zool. Garten.*—Der zoologische Garten, Organ der zoologischen Gesellschaft zu Frankfurt. *Frankfort.*

ERRATA, &c.

- P. 23, line 11 from foot, for *Ireland* read *Northumberland*.
P. 32, line 11, for 5 read 6.
P. 39, line 19, for *Ballybetah* read *Ballybetagh*.
P. 40, line 7, *dele*?
P. 47, line 17, for **Bosmaski** read **Bosniaski**.
„ line 8 from foot, after *Türkei* add und *Wink* zur Ausfüllung der Lücken unserer jetzigen geographischen und geognostischen Kenntnisse dieser Halbinsel.
P. 48, line 6 from foot, for *Trogonia* read *Trigonia*.
P. 56, line 7, *dele* proposed.
P. 58, line 5, for *diuvial* read *diluvial*.
P. 59, line 16, for 563 read 563, 564.
P. 61, line 16 from foot, for **D. J.** read **Dr. J.**
„ lines 14 & 10 from foot, for *Kaménis* read *Kaiménis*.
P. 74, line 13 from foot, for *sydlize* read *sydlige*.
P. 76, line 6 from foot, after *Bremen*.] add *Abh. nat. Ver. Bremen*, Bd. vi. pp. 109–306.
P. 79, line 9 from foot, for **Lieb** read **Liebe**.
P. 90, line 9, for *geologicio* read *geologico*.
P. 91, line 1, for *Resiña* read *Reseña*.
„ line 9, for *dell* read *dell'*. In same line, after *anno*, read 79.
„ line 21, for *Prososthema* read *Prososthenia*.
„ line 19 from foot, for *numera* read *miniera*.
P. 103, line 9 from foot, } add *Rend. R. Ac. Sci. fis. Napoli*, anno xviii.
P. 104, line 7 from foot, }
P. 105, line 13, add *Discusses the theory of two axes of eruption*.
„ line 14, for **Gemellaro** read **Gemmellaro**.
„ line 6 from foot, for *eruptions* read *eruptions*.
P. 107, line 22, for *as* read *in*.
P. 111, line 8, for **Terrige** read **Terrigi**.
P. 113, line 15 from foot, for *roku* read *rokn*.
P. 123, line 2 from foot, for *Lagenverhältnisse* read *Lagerverhältnisse*.
P. 125, line 16 from foot, before *R.* add *Ann*.
„ line 15 from foot, for *e. g.* read *E. Q.*
„ line 12 from foot, read *Monografia Archeologia e Statistica della città di Roma e della Campagna Romana*.
P. 126, line 3, for **Marmoni** read **Mannoni**.
P. 133, line 10, for — read **G**.
„ line 11, after 200 add vol. xxxv. pp. 427–429.
P. 143, line 4, for CaCO_4 read CaCO_3 .
P. 148, line 10 from foot, for *Coal* read *Oil*.
P. 158, line 15 from foot, for *Ouro-Breto* read *Ouro-Preto*.
P. 165, lines 3–6. For specific names see pp. 382, 383. 6 of the genera are not really new.
P. 166, line 11 from foot, for **Macfarlan** read **Macfarlane**.
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- P. 170, line 3 from foot, for *Metastomatic* read *Metasomatic*.
P. 171, lines 9 & 10, for *Itaparica*. Todos, read *Itaparica I., Todos*.
P. 173, line 2 from foot, for *Kaulerskill* read *Kauterskill*.
P. 174, line 10 from foot, *dele* The.
P. 189, line 6 from foot, for *Armemien* read *Armenien*.
P. 191, line 14, for W. C. read W. H. D.
P. 197, line 4, for *Duirvier* read *Duvivier*.
P. 213, line 6, for *Lime* read *Limestone*.
P. 235, line 8 from foot, after *Trans.* add vol. iii.
P. 243, line 19 from foot, for *perioditic* read *peridotitic*.
" line 7 from foot, for *Közeltani* read *Közettani*.
P. 244, line 1, for **Lander** read **Sandor**.
P. 246, line 2 from foot, for **Roller** read **Rolle**.
P. 254, line 6, for t. read no.
" line 13, for *Ovijak* read *Ovifak*.
P. 255, line 7, *dele* (). St. = Stanislas.
P. 258, line 6 from foot, for *provencenza* read *provenienza*.
P. 259, line 19, for *marls* read *twin-crystals*.
P. 261, line 16 from foot, add *Gazz. Chim. Ital.* vol. ix. pp. 118-140.
P. 265, line 10, for *Phosphoranylite* read *Phosphuranylite*.
" line 6 from foot, for **Graltarola** read **Grattarola**.
P. 270, lines 14 & 15 from foot, for *Aranger* read *Aranyer*.
P. 273, line 20, } *aid Ber. deutsch. chem. Ges. Bd. xii. p. 1723.*
P. 275, line 17, }
P. 277, line 7 from foot, for *Andeasberg* read *Andreasberg*.
P. 279, line 19 from foot, for d. read der; for *vorkommen.* read *vorkommenden*.
P. 280, line 19 from foot, for *egyuj* read *egy uj*.
P. 282, line 9, for *Sismondine* read *Gismondine*.
P. 285, line 9, for *Molybdenite* read *Molybdenum*.
" line 3 from foot, for *proscingato* read *prosciugato*.
P. 308, line 16, for **Waagan** read **Waagen**.
P. 311, line 13 from foot, for and read of.
P. 315, line 2, for *Cortazori* read *Cortazari*.
P. 316, line 9 from foot, for *Staldon* read *Haldon*.
P. 349, line 5 from foot, for *dess en* read *dessen*.
P. 357, line 12 from foot, for *Nat.* read *Mat*.
P. 359, line 14 from foot, for **Gurner** read **Grüner**.
P. 363, line 17 from foot, for *Lime* read *Mine*.
" line 19 from foot, for *Bestlandtheile* read *Bestandtheile*.

THE
GEOLOGICAL RECORD
FOR 1879.

STRATIGRAPHICAL AND DESCRIPTIVE GEOLOGY.

1. BRITISH ISLES.

Sub-Editor, W. TOPLEY, F.G.S., Assoc. Inst. C.E.

Aitken, John. On the Occurrence of a Bed of Iron Pyrites in the Millstone Grit in the Walsden Valley, near to the Remains of an ancient Bloomary. *Trans. Manch. Geol. Soc.* vol. xv. pt. viii. pp. 185-194.

The bed occurs in Third Grit of Bottomly Brook. Thinks that pyrites was the ore smelted.

Allport, S. On the Rocks of Brazil Wood, Charnwood Forest. *Geol. Mag.* dec. ii. vol. vi. pp. 481-485.

Describes the characters of the hornblendic granite, the intrusive granite, and the micaceous schist.

Allport, S., and W. J. Harrison. On the Rocks of Brazil Wood Charnwood Forest. *Midl. Nat.* vol. ii. pp. 243-245.

Anon. Excursion to Weymouth and Portland. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 172-174.

Describes the beds from Forest Marble to Chalk.

——. Excursion to Crayford and Erith. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 174-175.

——. [John Hopkinson?] Excursion to Hertford and Ware *Trans. Watford Nat. Hist. Soc.* vol. ii. pt. 4, pp. xxvi-xxix.

Geology of the places visited explained by Prof. Morris.

——. [John Hopkinson.] Field Meetings . . . Watford. *Trans. Watford Nat. Hist. Soc.* vol. ii. pt. 6, pp. xlv-xlvi.

The geology of places visited explained by W. Whitaker.

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Anon. [Excursions to Williamscoote and Chipping Warden, to Blisworth, and to Dudley.] *Proc. Warwick. Field Club* for 1879, pp. 55, 56, 60.

Sections and fossils seen briefly noticed.

—. Excursion to South Staffordshire. *Trans. N. Staff. Inst. Eng.* vol. iii. pt. iii. p. 131.

Account of Sandwell Park sinking, p. 132.

—. [J. Pitter.] Coal near London. *Journal of Gas-Lighting and Water-Supply*, vol. xxxiii. pp. 269, 270.

Reviews the evidences in favour of the existence of Coal Measures under the Thames valley.

—. [T. E.] The Bone Discoveries at Windy Knoll. *Manchester City News*, no. 828, Nov. 1.

Regards the remains as those of domestic and other animals flung into an old swallow-hole by man for sanitary or politic purposes in place of burial.

W. H. D.

—. [H. B. Woodward.] Norwich Geological Society. Excursion to Southwold. *Eastern Daily Press*, Oct. 3.

Notes of examination of cliffs at Southwold, Easton Bavent, and Covehithe.

—. Hunstanton: A Descriptive Sketch. (Reprinted from the *Leicester Chronicle*.) Pp. 16. 8vo. *Hunstanton*.

Notes the geology, pp. 7, 8.

—. Among the Rocks round Glasgow. *Glasgow Weekly Herald*. (Continued in 1880, and published in book form.)

—. [Argus.] Was Adam the First Man Created? Pp. x, 115. 8vo. *London*.

Refers to Kent's Hole, Devonshire, pp. 110–112.

—. Water and Coal in the South and East of England. *Coll. Guard.* vol. xxxvii. p. 150.

—. [M. B. G.] The Midland Coalfield. *Coll. Guard.* vol. xxxvii. pp. 141, 256.

—. Coal in the Eastern Counties. *Coal and Iron Trades Gazette*, vol. vii. p. 928.

—. Geological Discovery at Charing Cross, London. *Canad. Nat. n. s.* vol. ix. no. 3, pp. 191, 192. From the *Athenæum*.

Argall, P. H. Notes on the Ancient and Recent Mining Operations in the East Ovoca District. *Proc. Dublin Soc.* n. s. vol. ii. part iii. pp. 211–225, pls. 12, 13; and *Journ. B. Geol. Soc. Ireland*, n. s. vol. v. pt. 2, pp. 150–164.

Describes the mineral lodes and mines in the country E. of the Ovoca river, giving a sketch of the geology of the district. Gives an analysis of "*Kilmacooite*" or Blue Stone. The plates give plans and sections of the Eastern Ovoca mines. R. B. N.

Atherton, James. Notes on a recent Boring in Openshaw, near Manchester, with Remarks on the Manchester Coalfield, and the District to the East of it. *Trans. Manch. Geol. Soc.* vol. xv. pt. vi. pp. 137-158; 2 pls. (sections).

The boring for the Clayton Colliery passed through Drift 36 feet; Lower Mottled Sandstone 82 feet; Permian Marls, with shales, sandstones, and thin limestones, 205 feet; Sandstone Conglomerate 27 inches; Permian Sandstone 752 feet; U. Coal Measures (shales, sandstones, and Ardwick Series) to a total depth of 1300 feet. Details are given. C. E. R.

Atkins, A. H. Black Band in the Drift. *Midl. Nat.* vol. ii. pp. 127, 189.

Occurs in a new railway-cutting at Washwood Heath, on the Birmingham and Coleshill Road.

Atkinson, J. T. On the History and Objects of the Society, especially with reference to the History of Selby and the Geology of Selby and the District. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 52-60. Contains remarks on local geology, pp. 59, 60.

Baily, W. H. Notice of some additional Labyrinthodont Amphibia and Fish from the Coal of Jarrow Colliery, near Castlecomer, County of Kilkenny, Ireland. *Rep. Brit. Assoc.* for 1878, p. 530.

Anthracosaurus Edgei and other Labyrinthodonts, besides several fishes.

— Report of the Committee appointed for the purpose of collecting and reporting on the Tertiary (Miocene) Flora, &c. of the Basalt of the North of Ireland. *Rep. Brit. Assoc.* for 1879, pp. 162-165.

Gives sections of the beds. Two beds of basalt, between which come lignite, brown earth, and pisolitic iron ore. The plants occur in the brown earth; 25 species are recorded. W. T.

Barrois, Dr. Charles. Note on the Rev. J. F. Blake's Paper on the Chalk of Yorkshire. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 165-169.

Examines the 6 zones of Blake (see GEOLOGICAL RECORD for 1878, p. 3); thinks that zone 4 (of *Inoceramus mytiloides*) = Turonian must be divided into three. W. T.

— Remarques sur le travail de M. Prestwich intitulé : On the Section of Messrs. Meux and Co.'s Artesian Well, &c. Q. J. G. S. 1878, p. 902. [Remarks on Prestwich's Paper.] *Ann. Soc. Géol. Nord*, t. vi. pp. 96-100.

Gives a section of the well, and comments on the probable extension of the Coal Measures under the Chalk.

Beavan, C. W. Boring at Sutton Bridge Dock, Lincolnshire. *Proc. Norwich Geol. Soc.* vol. i. pt. 3, p. 73.

48 feet in alluvial beds. List of marine shells given.

Bell, A. The Area of the Middle Drifts as determined by their Contents. *Proc. Lit. Phil. Soc. Manch.* vol. xviii. p. 51.

Birds, J. A. Beekite in the Channel Islands. *Geol. Mag.* dec. ii. vol. vi. p. 334.

Records occurrence in Triassic conglomerate, Bouley Bay, Jersey.

Blake, Rev. J. F. The Geological History of East Yorkshire. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 15-29.

The Trias of the Vale of York separates the districts of E. and W. Yorkshire. The great fold bounding the Yorkshire coalfield and bringing in older rocks near Harrogate seems to have been continued E., and to have had an effect on all subsequent deposits. Rhætic beds are thin or absent, probably from the gradual elevation of the base on which the Trias rested. The Lias seems to have been derived from the waste of the Carboniferous strata. The alternations of estuarine and marine conditions during the Liassic and Oolitic periods are described. S. of Market Weighton the Liassic and Oolitic beds differ from those of the true Yorkshire basin to the N. But after the deposition of the Kelloway Rock the separation between the true Yorkshire and the Lincolnshire areas was nearly obliterated, and the Oxford Clay spread over the whole area, and united Yorkshire, to the south. After the deposition of the Coralline Oolite and Kimmeridge Clay, Yorkshire continued to receive clay deposits, while Portlandian reefs were formed in the south. The upheavals and denudation succeeding the deposition of the Kimmeridge Clay are discussed, together with the Speeton Clay, the result of the denudation of the Kimmeridge Clay. Yorkshire then became, for U. Cretaceous rocks, part of a wider area. The age of the Red Chalk is doubtful. But a sinking of the whole area preceded the deposition of the Chalk. Boulder Clay is seen in the N. to a height of 350 feet; and in the Chalk district floating ice has torn up and contorted the surface.

T. V. H.

— Reply [to Dr. Barrois's Note]. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 170, 171.

Refers to the correlation of the zone of *Micrasters*, and to the nomenclature of the *Inocerami*.

Bonney, Prof. T. G. On the Quartz-felsite and Associated Rocks at the base of the Cambrian Series in North-western Carnarvonshire. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 309-320, pl. xiii. (rock-slices); Discussion, p. 325.

These rocks are chiefly lava-flows, in one part only being metamorphic and of earlier date. Lithological and stratigraphical details of the Moel-Tryfaen, Llyn-Padarn, and Bangor districts are given. W. W.

Bonney, Prof. T. G. The Pre-Cambrian Rocks of Great Britain. *Proc. Birmingham Phil. Soc.* vol. i. no. 3, pp. 140-160.

The evidence of origin and age of the rocks is from field-work and from the microscope. Describes these rocks in N.W. Scotland, N. Wales (criticising Prof. Hughes's paper), Malvern, the Wrekin, and Charnwood. W. W.

Bonney, Prof. T. G., and F. T. S. Houghton. On the Metamorphic Series between Twt Hill (Caernarvon) and Port Dinorwig. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 321-326.

The stratigraphy of the series described. The name *Granitoidite* is proposed for a clastic rock, poor in mica and but slightly foliated.

Brodie, Rev. P. B. On the Derivation and Distribution of certain Quartzite and other Pebbles in the Drift of Warwickshire and other places, and their possible identity in origin with similar Pebbles found *in situ* in the New Red Sandstone at Buddleigh Salterton, Devon. *Proc. Warwick. Field Club* for 1879, pp. 28-39.

Buckman, Prof. J. On the so-called Midford Sands. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 736-743.

Phillips confounded sands near the top of the Inf. Oolite with other sands below that rock. Gives details of sections and lists of fossils. The sands at Midford are not the same as the Oolitic (or Lias) sands of the Cotteswolds. W. H. D.

Burton, F. M. On the Keuper Beds between Retford and Gainsborough. *Rep. Brit. Assoc.* for 1879, pp. 336, 337 (abstract).

——. On a Northerly Extension of the Rhætic Beds at Gainsborough. *Rep. Brit. Assoc.* for 1879, p. 337 (abstract). In full with the preceding in *The Retford, Worksop, Isle of Axholme, and Gainsborough News*, Nov. 15, and reprinted 4 pp. 4to. *Gainsborough*.

Callaway, Dr. Charles. The Precambrian Rocks of Shropshire. Part I. With Notes on the Microscopic Structure of some of the Rocks, by Prof. T. G. Bonney. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 643-669.

Describes the physical geography of the Wrekin and Caer Caradoc chain; gives lithological and stratigraphical details under 16 local headings, and the evidence of age (stratigraphical and from included fragments). W. W.

——. The Tripartite Division of the Silurian and Cambrian Formations. *Geol. Mag.* dec. ii. vol. vi. pp. 142, 143.
Letter in support of Mr. Lapworth's term "Ordovician."

Callaway, Dr. C. On Plagioclinal Mountains. *Geol. Mag.* dec. ii. vol. vi. pp. 216-221.

The normal structure of mountains may be called *orthoclinal* (parallel to strike). Some of the Pre-Cambrian ranges have a different structure, the strike being across the axis. The Wrekin and Caer Caradoc ranges are described as showing this, as also the Malverns. The trend of the elevations in these cases has been determined by parallel faulting. The term *plagioclinal* is suggested for such mountains. W. W.

——. The Quartzites of Shropshire. *Midl. Nat.* vol. ii. pp. 39-44.

Gives a general account of these, and describes their relations to the associated rocks, their age and fauna.

——. Two Pre-Cambrian groups in Shropshire. *Midl. Nat.* vol. ii. pp. 158, 159.

Mentions the discovery of a second Pre-Cambrian formation near Wellington.

——. The Oldest Mountain in England. *Pop. Sci. Rev.* n. s. vol. iii. pp. 15-24; 3 woodcuts.

A description of the Wrekin, in Shropshire. It is chiefly composed of bedded felspathic lavas and tuffs; on these rest, unconformably, Pre-Cambrian quartzites. On the S.E. side these are succeeded (unconformably and with faulted boundaries) by Hollybush Sandstone (L. Cambrian) and Shineton Shales (Tremadoc). W. T.

——. How the River Severn cut through Wenlock Edge. *Science for All*, no. 7.

Cameron, A. G. Lecture on Geology. *Cleveland News*, Feb. 15.

Report of a lecture at Great Ayton (Cleveland) describing the geology of the district, especially the ironstone and the Whin dyke.

——. Ripon Swallow-holes. *Geol. Mag.* dec. ii. vol. vi. p. 575.

The latest subsidence occurred in 1877.

Carmichael, Charlotte. Country Subjects and Pursuits. XII. Field Geology. *The Ladies' Edinburgh Magazine*, vol. v. pp. 481-487.

Refers to points of interest in Scotch and English geology.

Cash, Wm., and Thos. Hick. A Contribution to the Flora of the Lower Coal Measures of the Parish of Halifax, Yorkshire. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. i. pp. 73-82.

The fossil plant remains showing structure are, in this district, confined to the Halifax Hard Seam. This bed is in many parts studded with nodules (varying in size from that of a nut to that of a man's head), of which an analysis is given, and containing stems, rootlets, and branchlets of plants, and sometimes cones, spores, and other organs of fructification. A list of the forms found up to the present time is given. T. V. H.

Champernowne, A. The Devonian Question. *Geol. Mag.* dec. ii. vol. vi. pp. 125-127.

Supports Hull's views.

Champernowne, A., and W. A. E. Usaher. Notes on the Structure of the Palæozoic Districts of West Somerset. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 532-548; 6 woodcuts.

Describe four traverses:—Dulverton to Dunster; Dunster to the Foreland; Torre valley; and across the Quantocks to Cannington Park. Confirm for the most part Etheridge's views, but regard the Cannington Park limestone as Carboniferous. Describe the nature of the beds and various faults. W. T.

Clark, J. E. On the Triassic Boulder, Pebble and Clay beds at Sutton Coldfield, near Birmingham. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 66-72, pl. iv. (sections).

Describes sections on the railway between Sutton and Walsall of Triassic, or Triassic and Permian, age. Considers that they probably bear witness to ancient periods of glacial action. T. V. H.

——. Recent Shell Deposits. *Nat. Hist. Journ.* vol. iii. pp. 3-7, pl. i. (map and section).

Describes alluvial deposits near Chelmsford, with a list of 61 land- and freshwater shells.

——. Christchurch Ledge. *Nat. Hist. Journ.* vol. iii. p. 27.

A description of the spit of land about 2 miles long and $\frac{1}{4}$ to $\frac{1}{2}$ a mile broad that has recently been formed across the mouth of Christchurch Bay, Hampshire. T. V. H.

——. Askham Bog. *Nat. Hist. Journ.* vol. iii. pp. 113-115, pl. viii.

Askham Bog, 2 miles S.S.W. from York, "is the site of a former lakelet, occupying that part of a glacial depression which the Brick-earth deposits had failed to level up." T. V. H.

Clinch, G. Sketch of the Geology of Hayes Common, Kent. *Sci. Goss.* no. 178, pp. 217, 218.

The beds observed are the Pebble beds of the Woolwich and Reading series, which here rest directly upon the Chalk without the intervention of the Thanet Sand. A. J. J-B.

Close, Rev. M. H. Anniversary Address to the Royal Geological Society of Ireland. *Proc. R. Dublin Soc.* vol. ii. n. s. part iii. pp. 191-208; and *Journ. R. Geol. Soc. Ireland*, n. s. vol. v. pt. 2, p. 132. Gives an account of Sir R. Griffith's work.

Clough, C. T. The Whin Sill of Teesdale as an Assimilator of the surrounding Beds. *Quart. Journ. Geol. Soc.* vol. xxxv., *Proceedings*, pp. 100, 101 (abstract).

During its intrusion the Whin absorbed sedimentary beds, the place of which it now occupies.

Cole, Rev. E. M. On the Red Chalk. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 30-39, pls. i. & ii. (sections).

Notes localities at which, from the thinness of the White Chalk at the escarpment, Red Chalk is visible a mile or more within the boundary-line. Describes the variations of colour in the Red Chalk, and speculates on their cause. "The grey and red chalk are parts of the same formation."
T. V. H.

Collins, J. H. Preliminary Note on the Stratigraphy of West Cornwall. *Trans. R. Geol. Soc. Cornwall*, vol. x. pt. i. pp. 1-7, map (woodcut).

Distinguishes what he calls the *Ladock Beds*, which are U. Silurian. Extends the area of the L. Silurian rocks considerably, and considers the slate rocks of the mining districts of Redruth and Camborne to be pre-Silurian.
C. L. N. F.

Cook, —. Coal in Alluvial Sand at Moston. *Trans. Manch. Geol. Soc.* vol. xv. pt. iv. pp. 62, 63, with Discussion.
Short note of occurrence (6 lines).

Cossham, Handel. Faults in the Bristol Coalfield, and how Caused : with special reference to Lateral Pressure. *Coll. Guard.* vol. xxxvii. pp. 335, 373, 413. (In book form, 4to. 1881. Price 2s. 6d.)

Refers especially to the Kingswood and Parkfield sections of the Bristol Coalfield, and recognizes lateral pressure as the main explanation of the faulted condition, not only of this area, but of the whole crust of the earth. Illustrated with 10 sections.
R. B. N.

Craig, Robert. On the Fossils of the Upper Series of the Lower Carboniferous Limestone in the Beith and Dalry Districts of North Ayrshire. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 1-17.

Describes the lithological character of the rocks, treats of them under their palæontological aspect, and gives a list showing the range of each species.
J. G. G.

Crofton, Rev. A. Notes on the Geology of the Shap Granite. *Trans. Manch. Geol. Soc.* vol. xv. pt. xi. pp. 234-241.
Describes granite and glaciation.

Crosskey, Rev. H. W. Sixth Report of the Committee appointed for the purpose of recording the position, height above the sea, lithological characters, size, and origin of the Erratic Blocks of England, Wales, and Ireland, reporting other matters of interest connected with the same, and taking measures for their preservation. *Rep. Brit. Assoc.* for 1878, pp. 185-193.

Reports by **J. R. Dakyns** on Boulders near Kendal; by **W. Molyneux** on Boulders in the Midland District; and by **James Plant** on Boulders in Leicestershire.
W. T.

Crosskey, Rev. H. W. Seventh Report of the Committee
Erratic Blocks. . . . (See above.) *Rep. Brit. Assoc.* for 1879, pp.
135-140.

Notes observations by **T. M. Hall** near Barnstaple; **Prof. Bonney, W. Matthews**, and the author, at Frankley Hill, Worcestershire; Staffordshire, by **D. Mackintosh**, "Greenstone" boulders of Mersey and Dee; Report by **J. R. Dakyns** on Shap Boulders on the Yorkshire Coast.

W. T.

Crowfoot, W. M. On the Well-sections at Beccles. *Proc. Norwich Geol. Soc.* vol. i. pt. iii. pp. 76-79.

Details of two wells, 157 feet deep, in Glacial and Pliocene beds, and list of Crag fossils found.

Dakyns, J. R. On the Southward flow of Shap Granite Boulders. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 60-65, pl. iii. (sections).

These boulders came nearly S. across ground higher than the greater part of the granitic area; while immediately N. of the granite there is no ground so high as the granitic fell itself. This shows that the boulders were not distributed by ordinary glaciers, but either by an ice-sheet moving S. regardless of the shape of the ground, or by floating ice. But floating ice would demand a submergence of at least 1400 feet, and the boulders would then have been distributed far and wide, instead of being confined to a narrow band of country; and most of the granitic area itself would have been submerged. Thus the only tenable explanation seems to be that of an ice-sheet advancing S. under great pressure from behind. Notices Drift sections near Kendal. **T. V. H.**

—. Glacial Beds at Bridlington. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. ii. pp. 123-128, pls. vii.-ix. (sections).

Describes the cliff-sections, especially referring to the chalky gravel above the Boulder Clay. The so-called unconformities in the Glacial beds are mostly only local. The colour of beds, especially redness, is often a delusive test of age. **W. W.**

—. The Calder Valley. *Geol. Mag.* dec. ii. vol. vi. pp. 46, 47.
Letter on Mr. Davis's paper (*GEOLOGICAL RECORD* for 1878, p. 8).

—. The Hitching Stone. *Ibid.* p. 96.

This stone (on Sutton Moor, near Keighley) is not a boulder, but a block of Millstone Grit weathered out in place.

—. The Bridlington and Sewerby Gravels. *Ibid.* pp. 238, 239.
Some of these gravels are Glacial.

—. Lenticular Hills of Glacial Drift. *Ibid.* pp. 382, 383.
Notes the occurrence of such in Yorkshire and Westmoreland.

—. The Purple Boulder Clay at Holderness. *Ibid.* p. 528.
It is distinctly stratified in many places.

Dakyns, J. R. The Parallel Roads of Glen Roy. *Geol. Mag.* dec. ii. vol. vi. pp. 529-531.

Sections made by stream through the roads show that the roads are cut in the solid rock, and are not absolutely parallel.

Dakyns, J. R., C. F. Strangways, R. Russell, and W. H. Dalton. Explanation of Quarter-sheet 92 S.E. of the Geological Map of England and Wales, illustrating the Geology of the Country between Bradford and Skipton. *Geological Survey Memoir*. Pp. 20. 8vo. London. Price 6d.

Describe U. Limestone Shales, Millstone Grit (35 divisions), L. Coal Measures (26 divisions), and Post Tertiary deposits (5 divisions).

Davies, W. On some Recently Discovered Teeth of *Ovibos moschatus*, from Crayford, Kent. *Geol. Mag.* dec. ii. vol. vi. pp. 246-248.

Notifies the localities of remains of this animal; gives measurements of teeth, and a list of the associated Mammalia at Crayford.

Davis, J. W. On the Occurrence of certain Fish-remains in the Coal Measures, and the evidence they afford of Fresh-water Origin. *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 40-52; and *Rep. Brit. Assoc.* for 1878, p. 539 (abstract).

Gives a section of the beds of the Yorkshire coal-field. The remains occur in the Adwalton Stone (or Cannel) Coal, which is worked at Gildersome, Ardsley, etc. The fish and mollusca are of freshwater types; and the preservation of delicate fronds of ferns and other plants also points to a freshwater origin. T. V. H.

— **Gordale Scar.** *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. i. pp. 83, 84.

A description of the geology, to accompany a photograph.

— **On the Source of the Erratic Boulders in the Valley of River Calder, Yorkshire.** *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. ii. pp. 141-154; and *Geol. Mag.* dec. ii. vol. vi. pp. 313-321.

The lower part of the valley is filled with gravel, sand, and boulders. S. of Sowerby Bridge the upper beds contain local pebbles, while below there is a preponderance of travelled rocks from Westmorland and Cumberland, Shap Fell granite, and flints, like those of Yorkshire. There are no large boulders in the upper part of the valley. The boulders were derived from the glacial deposits of the district, and were carried to their present positions by the action of the sea, with ice floes, during a period of depression. W. K.

— **Plumpton Rocks.** *Proc. Yorksh. Geol. Soc.* n. s. vol. vii. pt. ii. pp. 196, 197.

Descriptive of a photograph.

— **The Calder Valley.** *Geol. Mag.* dec. ii. vol. vi. p. 191.

In answer to **Dakyns** (see above).

Dawkins, Prof. W. B. On the Range of the Mammoth in Space and Time. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 138-147.

Refers to Mammoth remains under Boulder Clay (therefore termed preglacial) in S. England, Scotland, Cheshire, and Norfolk; to the range of the Mammoth in Europe, Asia, and America; and to its affinities with the Indian Elephant. W. H. D.

Dawkins, Prof. W. B., and Rev. J. M. Mello. Further Discoveries in the Creswell Caves. With Notes on the Mammalia by its former. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 724-735.

Give plans, sections, and lists of mammals, and note the history of the caves.

De Rance, C. E. Notes on some Triassic Borings. *Trans. Manch. Geol. Soc.* vol. xv. pt. v. pp. 90-112.

Describes the overlap of the Keuper Waterstones over the Bunter, and of the Keuper Marls over the Waterstones, with descriptions of deep borings made at Liverpool, Warrington, Leicestershire, and Middlesboro', with an analysis of salt by John Pattinson. C. E. R.

— Fourth Report of the Committee for Investigating the Circulation of the Underground Waters in the Jurassic, New Red Sandstone, and Permian Formations of England, and the quantity and character of the Water supplied to various Towns and Districts from these formations; with Appendix (by I. Roberts) on the Filtration of Water through Triassic Sandstone. *Rep. Brit. Assoc.* for 1878, pp. 382-419.

Describes wells in Leicestershire, Warwickshire, Cheshire, and Lancashire. Gives a general description of the water-bearing qualities of the Jurassic rocks. The appendix shows that Triassic sandstone extracts salt from sea-water which filters through it. W. T.

— Fifth Report (See above.) *Rep. Brit. Assoc.* for 1879, pp. 155-161.

Gives areas of New Red Sandstone and Marl within the various river-basins, and notes of wells, in New Red and Jurassic beds, in Devonshire, Berks, Dorset, Leicestershire, and Rutland. Report by I. Roberts on West Kirby, Cheshire. W. T.

Downes, Rev. W. The Limestones of Westleigh and Holcombe Rogus. *Trans. Devon. Assoc.* vol. xi. pp. 433-441, map and plate of sections.

Gives additions to a published list of fossils from the localities mentioned. Describes the flexures, the thickness, and the general lithological character of these limestones along 7 lines of section. Makes observations on the Triassic rocks of the district. J. G. G.

— Palæolithic Implement found in Devonshire. *Geol. Mag.* dec. ii. vol. vi. p. 480.

A surface specimen from Kentisbeare, in the valley of the Culm.

Dowson, E. T. Note on the Crag at Dunwich. *Proc. Norwich Geol. Soc.* vol. i. pt. iii. pp. 80-83.

Notes the occurrence of shelly Crag in patches at the foot of the cliff S. of Dunwich, and gives a list of the fossils found, marking the relative abundance of each species. W. W.

Elrington, R. List of Fossils. 9 *Ann. Rep. Wellington Coll. Nat. Sci. Soc.* pp. 69-72.

Apparently a list of the (British) fossils in the Society's collection.

Etheridge, Robert. The Position of the Silurian, Devonian, and Carboniferous Rocks in the London Area. *Pop. Sci. Rev.* n. s. vol. iii. pp. 279-296, pl. vii. (map and sections).

Describes borings reaching Palæozoic rocks. Tottenham Court Road, Devonian at 1148 ft.; Turnford, Devonian at 980 ft.; Ware, Silurian at 800 ft.; Burford, Coal Measures at 1184 ft. 33 species are recorded from the Wenlock rocks under Ware. W. T.

——. Position of the Silurian Rocks in Herts. *Geol. Mag.* dec. ii. vol. vi. pp. 286-288.

Reprint of a letter in *The Times* (May 19), on the Turnford and Ware borings, with an additional note on the fossils found in the latter.

Fisher, Rev. O. On a Mammaliferous Deposit at Barrington, near Cambridge. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 670-677, Discussion, p. 734; and *Proc. Camb. Phil. Soc.* vol. iii. pt. 6, p. 271. Post-glacial gravel, with 14 species of mammals (including Man), and 6 species of land and freshwater shells.

Foster, Dr. C. Le N. On a Rock resembling Luxullianite from St. Just; and on some globular masses of Schorl rock from Ding Dong Mine. *Trans. R. Geol. Soc. Cornwall*, vol. x. pt. i. pp. 8, 9. Note of the occurrence of these rocks.

Frazer, W. On Hy Brasil, a Traditional Island off the West Coast of Ireland, plotted in a MS. map, written by Sieur Tassin, Geographer Royal to Louis XIII. *Proc. R. Dublin Soc.* vol. ii. n. s. pt. ii. pp. 173-176, pl. 9 (map).

Thinks that this supposed island really existed, and that it has disappeared through subsidence.

Gardner, J. S. Description and Correlation of the Bournemouth Beds. Part I. Upper Marine Series. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 209-228.

The leaf-beds are of M. and not L. Bagshot age. The bryozoon *Diachoris* occurs in the series, and is now first recorded as fossil. Gives details of sections, and describes the coast from Highcliff to Bournemouth. Proposes the terms Highcliff Sands, Hengistbury Head Beds, Boscombe Sands, and Bournemouth Beds as divisions of M. Bagshot (Bracklesham) Beds. W. W.

Gardner, J. S. On the British Eocenes and their Deposition. *Proc. Geol. Assoc.* vol. vi. no. 2, pp. 83-106, pl. i. (chart of Atlantic soundings), 2 woodcuts.

Describes each division up to the Hempstead Beds, chiefly from the I. of Wight and Hampshire, but noting the beds of the London Basin. The marine sands, 176 feet thick in Alum Bay, are taken from the L. Bagshot and placed with the London Clay. The *M. Bagshot* includes the Bracklesham, Bournemouth, and Bovey Tracey beds, the M. and so-called U. Bagshot of the London Basin. The *U. Eocenes* include all from the L. Headon Beds upwards. Through all the Eocene period a river flowed from the west through lakes (as at Bovey Tracey) to the estuary where is now the Hampshire Basin. Up to the time of the Bracklesham Beds the basins of London and Hampshire were continuous; but after that they were separate, the higher Eocenes of Hampshire being deposited in a gradually decreasing area. Traces the oscillations of land and the migrations of the fauna and flora.

W. T.

—. On the Correlation of the Bournemouth Marine Series with the Bracklesham Beds, the Upper and Middle Bagshot Beds of the London Basin, and the Bovey Tracey Beds. *Geol. Mag.* dec. ii. vol. vi. pp. 148-154.

The L. Marine beds of Bournemouth contain Bracklesham fossils and ferns. The U. Marine series is unfossiliferous. There is no evidence of the presence of U. Bagshot Beds in the London Basin. The Bovey Tracey beds are the representatives of the M. Bagshot of Bournemouth and of the London Basin.

W. K.

—. On the Extent of the Gap between Chalk and Eocene in England, and on the so-called Upper Cretaceous Floras. *Pop. Sci. Rev.* n. s. vol. iii. pp. 55-60.

The time represented by the gap between the English Cretaceous and Eocene is probably greater than that represented by either of these formations. To this intermediate period are referred the beds yielding a rich dicotyledonous flora in N. America, parts of Europe, and New Zealand.

W. T.

Geikie, Prof. Archibald. On the Carboniferous Volcanic Rocks in the Basin of the Firth of Forth, their Structure in the Field and under the Microscope. *Proc. R. Soc. Edin.* vol. x. pp. 65, 232; *Trans. R. Soc. Edin.* vol. xxix. pp. 437-518, pls. ix.-xii. (map, sections, microscopic rock-sections).

Under *Stratigraphy* adverts to published opinions, describes the geology of the L. Carboniferous rocks of the area, their relations to the rocks above and below, and their mode of formation; groups the exposures of the associated volcanic rocks into six districts, each the centre of an independent eruption, which differed from those of neighbouring tracts both in time and in the character of the ejectamenta. These areas and the leading petrographical characters of the volcanic rocks are shown on the map, while the thicknesses and the position of

the volcanic rocks in the L. Carboniferous rocks are shown in sections. Describes the structure of the volcanic rock masses, under Volcanic Necks, Intrusive Sheets and Dykes, and Bedded Lavas and Tuffs, with woodcuts of volcanic phenomena observed.

Under *Petrography* treats of the microscopic structure of the volcanic rocks, divided into, I. Crystalline Rocks or Lavas, and II. Fragmental Rocks or Tuffs. Under I. describes the external characters, mode of occurrence, and microscopic characters of the Augite-Felspar rocks, including the Diabases, Dolerites, Basalts, and the Serpentine-olivine rocks; of the Felspar-Magnetite rocks, embracing the Porphyrites; and of the Felspar (Orthoclase) rocks, represented by the Felsites. Under II. the Fragmental Rocks are similarly described. 12 rock-sections are given. J. G. G.

Geikie, Prof. A., Dr. J. Geikie, and B. N. Peach. Sheet 31 of The Geological Survey of Scotland. The Geology of the Lanarkshire and Stirlingshire Coalfields and surrounding district. With Palæontological Notes and list of fossils and localities by R. Etheridge, jun. Pp. 87. *Geological Survey Memoir*. 8vo. *Edinburgh*. Price 2s. 3d.

General description of district :—Formations : Recent ; Drift Series, including Sands, Gravels, and Stratified Clays of the upper terrace of the Forth and Clyde ; Carboniferous (Upper Red Sandstone Group, Coal Measures, Millstone Grit, Carboniferous Limestone, Calciferous Sandstone); Igneous rocks, interbedded and intrusive. Sections given of all chief basins in the Coal Field. J. S. G-W.

Glen, D. C. Notes on the Varieties of Trap Rocks found on the Coast of Ayrshire, near Largs. *Trans. Geol. Soc. Glasgow*, vol. vi. pp. 72-78.

Gives an account of the lithological character, composition, and physical relations of the volcanic rocks associated with the Calciferous Sandstone near Largs. Refers to the occurrence of volcanic "necks," believed to be Permian; and to the occurrence of dolerite dykes, probably Miocene. J. G. G.

Godwin-Austen, R. A. C. Report of a Committee appointed for the purpose of assisting in the Kentish Boring Exploration. *Rep. Brit. Assoc.* for 1878, pp. 380-382.

Refers to the discovery of Devonian beds under Tottenham Court Road, London, and to the evidence these afforded of the range of the Palæozoic rocks. W. T.

— On some further Evidence as to the Range of the Palæozoic Rocks beneath the South-east of England. *Rep. Brit. Assoc.* for 1879, pp. 227-229, pl. xiv. (geological map).

Refers to the opinion of Dewalque that the Devonians under London probably dip S.; confirmed by the discovery of Silurian rocks at Ware. Believes that Coal Measures occur under London. W. T.

Godwin-Austen, R. A. C. Palæozoic Rocks in the South-east of England. *Nature*, vol. xx. p. 547. (See the above.)

Green, Prof. A. H., and R. Russell. Explanation of the Quarter Sheet 87 N.W. of the One-inch Geological Map of England and Wales, illustrating the Geology of the Neighbourhood of Wakefield and Pontefract. *Geological Survey Memoir*. Pp. ii, 14. 8vo. London. Price 6d.

Describe Carboniferous and Permian rocks.

Green, J. R., and Alice S. Green. A short Geography of the British Islands. 8vo. London. Pp. xix, 416. Maps. Geological notices scattered throughout.

Gunn, W. Glaciation of the West Yorkshire Dales. *Geol. Mag.* dec. ii. vol. vi. p. 384.

There are no foreign boulders in Wensleydale. The lake-country ice in passing over Stainmoor did not take the direction of the lowest pass, but passed over higher ground further north into Deepdale, etc.

W. K.

Hall, T. M. The submerged Forest of Barnstaple Bay. *Quart. Journ. Geol. Soc.* vol. xxxv., *Proceedings*, p. 106 (abstract). Exposed in 1863-64. The trees are in the position of growth.

——. The North Devon Section. *Geol. Mag.* dec. ii. vol. vi. pp. 94, 95.

——. History of the Classification and Nomenclature of the North Devon Rocks. *Trans. Devon. Assoc.* vol. xi. p. 180.

——. On the Geology of the Ilfracombe Coast-line. *Trans. Devon. Assoc.* vol. xi. pp. 276-282.

Treats of the coast from West Challacombe Bay to Woolacombe. The Ilfracombe series (slates) is M. Devonian.

——. Notes on some Errors relating to North Devon. *Trans. Devon. Assoc.* vol. xi. pp. 352-357.

Notes errors in papers by Etheridge and Kinahan, and in Murray's Handbook.

——. Note on the Occurrence of Granite Boulders near Barnstaple, and of a Vein of Granitoid Rock at Portledge. *Trans. Devon. Assoc.* vol. xi. pp. 429-432.

In a cutting at Bickington a large boulder was found in gravel. The vein described is in Triassic breccia.

——. Note on the Occurrence of Mineral Oil in Shale at Barnstaple. *Trans. Devon. Assoc.* vol. xi. p. 547.

The shale is uppermost Devonian.

Hardman, E. T. The Fossiliferous Clay Beds overlying Basalt, Lough Neagh, and the Geological Age of that Lake. *Geol. Mag.* dec. ii. vol. vi. p. 214.

Reply to Swanston (see below). Lough Neagh and its clays are not Miocene but post-Miocene. The origin of the silicified wood is obscure.

——. On the Influence of "Strike" on the Physical Features of Ireland. *Rep. Brit. Assoc.* for 1878, pp. 541, 542.

The prevailing direction of the greater physical features is parallel to the line of strike of the rocks. Cleavage, or incipient cleavage, has been induced along the line of strike by the forces which upheaved the rocks; and denudation is therefore most easily effected in that direction.

J. G. G.

Harris, W. H. Sketch of the Geology of Cardiff and surrounding district. *Sci. Goss.* no. 173, pp. 99–101; 2 woodcut sections.

Describes the section from Cardiff to Caerphilly, the rocks seen extending from the Silurian to the Trias. Gives an account of the Rhætic beds exposed on the shore between Penarth and Lavernock.

A. J. J-B.

Harrison, W. J. Annual Excursion. *Rep. Leicester Lit. Phil. Soc.* pp. 17, 18.

A notice of the Charnwood rocks.

——. Rambles with a Hammer. *Midl. Nat.* vol. ii. pp. 117–122.

First Excursion, over Charnwood Forest. Second: From Bardon Hill to Green Hill, High Towers, Charley, Nanpantan, Forest Gate, and Loughborough. Geology of routes described.

T. V. H.

——. Excursion to Charnwood Forest. *Midl. Nat.* vol. ii. p. 174.
Description of the geology of the country visited.

——. Fossiliferous Bunter Pebbles in the Drift. *Midl. Nat.* vol. ii. p. 283.

Quartzite, with *Orthis redux*, at Countesthorpe, S. of Leicester.

——. Geology of Cambridgeshire. Geology of Norfolk. Geology of Suffolk. *Kelly's Post-Office Directory for Counties of Cambridge, Norfolk, and Suffolk*, pp. 4–6, 201–204, 756–758.

——. Geology of Durham. Geology of Northumberland. *Kelly's Post-Office Directory of Durham and Northumberland*, pp. 8–10, 541–544.

Describes the following rocks in each county:—Silurian, Carboniferous Limestone Series, Millstone Grit, Coal Measures, Permian, Drift, the Whin Sill and Whinstone Dykes. In Northumberland there are also the Cheviot porphyrites. The lower part of the Carboniferous Limestone is described as Tuedian, the upper part as Bernician. New Red Sandstone occurs in S.E. Durham.

W. T.

Haughton, Rev. Dr. S. Geological Notes on the Structure of Middle and North Devonshire, made during a walking tour in Devonshire in the Summer of 1878. *Journ. R. Geol. Soc. Ireland*, n. ser. vol. v. p. 126; *Proc. R. Dubl. Soc.* n. ser. vol. ii. pt. ii. pp. 151, 152.

The geological structure of the area may be explained without invoking a fault. Gives an estimate of the thickness of the several parts of the Devonian rocks. R. B. N.

Helmhacker, R. Allgemeines über das Zinnerzvorkommen in Cornwallis, nebst einigen speciellen Beispielen. [Cornish Tin-ore.] *Oesterr. Zeitschr. Berg- Hütt.* pp. 427, 443, 458, 466, 473, 490, 500, 509, 524, 537, with plates.

Hicks, Dr. Henry. On a new Group of Pre-Cambrian Rocks (the Arvonian) in Pembrokeshire. With an Appendix by **T. Davies.** *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 285-294, sketch map; Discussion, p. 325. ? Abstract of this and the following, in one, in *Rep. Brit. Assoc.* for 1878, pp. 536, 537.

Describes a series of breccias, hälleflintas, and quartz-felsites between the Dimetian and Pebidian, partly separated from the former, as described in 1878, partly in new areas. The Appendix is on the microscopic structure of 9 rocks. W. H. D.

— On the Pre-Cambrian (Dimetian, Arvonian, and Pebidian Rocks) in Caernarvonshire and Anglesey. With an Appendix by **Prof. T. G. Bonney.** *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 295-308; Discussion, pp. 325, 326, sketch map.

Describes these rocks in five districts, making a large addition to the Pre-Cambrian tract. The Appendix is on the microscopic structure of 12 rocks. W. W.

— On the Classification of the British Pre-Cambrian Rocks. *Geol. Mag.* dec. ii. vol. vi. pp. 433-436, 528; and *Rep. Brit. Assoc.* for 1879, pp. 351, 352.

Deals with the directions of the lines of disturbance in the earth's crust at different geological periods. Gives a general account of the Pre-Cambrian rocks under the heads Lewisian, Dimetian, Arvonian, and Pebidian. W. K.

Holmes, T. V. The Geology of Sheffield. *Sci. Goss.* no. 176, pp. 169-172, woodcut section.

Gives a general account of the geology of the district, as laid down on the Geological Survey map, and describes the principal exposures of the Millstone Grit and of the Coal Measures. A. J. J-B.

Homer, C. J. The North Staffordshire Coal-field, with the Ironstones contained therein. *Trans. N. Staff. Inst. Eng.* vol. i. pt. i. pp. 102-112.

Gives a section of a borehole at Lightwood, near Longton, to a depth of over 243 yards. 1879. o

Howard, J. E. The Caves of South Devon and their teachings. *Journ. Vict. Inst.* vol. xiii. p. 16.

Combats the chronology of man given by Pengelly and others.

Hudleston, W. H. On the Controversy Respecting the Gneiss Rocks of the North-West Highlands. *Proc. Geol. Assoc.* vol. vi. no. 2, pp. 47-79; 12 woodcuts.

Gives a history of the controversy, illustrating the views of Murchison, Geikie, Nicol, and Hicks, by extracts from the *Quart. Journ. Geol. Soc.* There are a few notes on American equivalents. W. T.

Hughes, Prof. T. McK. Further Observations on the Pre-Cambrian Rocks of Caernarvon. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 682-693, pl. xxxvi. (map), 10 woodcuts (plan and sections).

Describes these rocks in ascending order under the headings:—

Caernarvon Beds	{	Twt Hill Beds.
(= Dimetian in part)		Crug Beds.
Dinorwig Beds		= Felsitic series of a previous paper.
Bangor Beds		= Volcanic Series.

These older series run parallel from Caernarvon to Bangor, and are flanked by a set of grits and conglomerates, classed as Cambrian, which are described. W. W.

—. On the Silurian Rocks of the Valley of the Clwyd. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 694-698; 2 woodcuts (sections).

Describes the beds and gives lists of fossils of the Denbigh and Coniston Grits and Flags, and of Graptolites of the Pale Slates.

Hughes, W. Outlines of Geology and Geological Notes of Ireland. The localities of its Mineral Resources, with Addenda on Disintegration of Rock, Antiquity of the Earth, &c. Ed. 3. Pp. 138. 8vo. London.

Hull, Prof. Edward. On the Geological Age of the Rocks forming the Southern Highlands of Ireland, generally known as "The Dingle Beds" and "Glengariff Grits and Slates" (Jukes). *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 699-723.

Reviews previous works. Re-examines the Dingle beds, the Parkmore Point conglomerate, the Killarney, Kenmare, Sneem, and Glengariff districts, and the U. Silurian of Galway and Mayo. Treats of the relations of the U. Silurian of S.W. Ireland to the English Silurian, and of the Old Red Sandstone to the Dingle Beds and Devonian rocks. Concludes that the Dingle Beds and U. Silurian (= Mweelrea and Salrock Beds) are unconformably overlain by Old Red Sandstone, cannot be equivalents of Devonian, and are probably the Ludlow series much expanded. W. H. D.

—. On the Occurrence of Crystals of Salt (Chloride of Sodium) in Chert from the Carboniferous Limestone. *Proc. R. Dublin Soc.* n. ser. vol. ii. pt. ii. pp. 129-132; 2 woodcuts (chert sections); and *Journ. R. Geol. Soc. Ireland*, n. s. vol. v. p. 122.

Shown by a microscopic examination to occur in the form of small cubes, generally with the exterior parts dark, but with translucent centres. In many cases the mineral has disappeared, leaving the walls of the cavity darkened by iron-oxide or by carbonaceous dust. The districts mentioned are cos. Kilkenny, Fermanagh, and Sligo.

J. G. G.

Hull, Prof. Edward. Note on a New Geological Map of Ireland.

Proc. R. Dublin Soc. n. s. vol. ii. part ii. pp. 133, 134, and *Journ.*

R. Geol. Soc. Ireland, n. s. vol. v. pt. 2, p. 104.

Notifies 4 important changes since the publication of Jukes's map (1867).

——. Additional Notes on the North Devon Section. *Geol. Mag.* dec. ii. vol. vi. p. 45.

Agrees with Dewalque that the Pilton and Barnstaple Beds are L. Carboniferous.

——. The Devonian Question: Reply to Mr. Kinahan's note.

Geol. Mag. dec. ii. vol. vi. pp. 127–130.

Maintains that there is a great break in the succession at Dingle Bay.

——. The Devonian Question. *Geol. Mag.* dec. ii. vol. vi. p. 192.

In answer to Champernowne (see p. 7).

——. The Discovery of Upper Silurian Rocks under the Chalk of Hertfordshire. *Geol. Mag.* dec. ii. vol. vi. p. 335.

This discovery corroborates views stated in 1861.

——. The Age of the Pennine Chain. *Geol. Mag.* dec. ii. vol. vi. pp. 573, 574.

Reply to Wilson (see *post*). The Permian beds on both sides of the Pennine chain are similar, and were originally continuous. Magnesian Limestone occurs at several places in the west.

W. K.

Humphrey, Robert. The Boulder Clay of Leith. *Sci. Goss.* no. 170, pp. 32, 33, woodcut.

Describes the position and contents of the Boulder Clay exposed on the shore near Leith, where it is overlain by a raised beach.

Hunt, A. R. On a Block of Granite from the Salcombe Fishing Grounds. *Trans. Devon. Assoc.* vol. xi. pp. 311–318.

One of many brought up by the trawl about 17 miles seawards from the Eddystone and the Bolt. These indicate the occurrence of granite in place.

J. G. G.

Hunter, J. R. S. Craginethan and its Vicinity. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 84–94.

Describes the chief geological features of the district. Gives a detailed section of the Carboniferous rocks in Fence Pit, Lesmahagow, and notes on the surface deposits.

J. G. G.

Hutchinson, T. N. On certain Ice-borne Boulders scattered over the summit of "Norber," near Clapham, Yorkshire. *Rep. Rugby School Nat. Hist. Soc.* for 1878, pp. 25, 26, pls. i., ii.

The boulders are Silurian, and lie most thickly on the surface of a limestone plateau. Most of them are supported on pedestals of limestone from a few inches to 3 feet or more thick. The height of the pedestals shows the waste of the limestone since the boulders were deposited.
T. V. H.

Ingram, Rev. A. H. V. On some Superficial Deposits in the Neighbourhood of Evesham. *Quart. Journ. Geol. Soc.* vol. xxxv. p. 678; and *Midl. Nat.* vol. ii. pp. 106, 197.

Notes coarse flint-gravel at Green Hill; clay, sand, and loam at Bengeworth, with bones of *Bos*, *Cervus*, and *Hippopotamus*, and shells of *Unio*.
W. H. D.

Jolly, William. Report of the Committee for investigating the Fossils in the North-west Highlands of Scotland. *Rep. Brit. Assoc.* for 1878, pp. 130-132.

Records the discovery of fossils in the limestone at Carveilan, or the Rough Island, near Cape Wrath, and in the quartzite of Loch Eribol.
W. T.

Jones, G. On the Excursion of the Members to Seaton. *Rep. Rugby School Nat. Hist. Soc.* for 1878, p. 22.

Jones, Prof. T. R., and B. B. Woodward. Excursion to Newbury. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 185-188.

Describe Chalk, Eocenes, Gravels, Peat, and Marl; also the springs and the physical geography.

Jukes-Browne, A. J. On the Southerly Extension of the Hessle Boulder-Clay in Lincolnshire. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 397-423, map.

Describes the range of the Hessle Clay in E. Lincolnshire and along the N. border of the Fenland. Believes it to have been formed by shore-ice. Gives reasons for believing that the Hessle Sands, below the Clay, are older than the gravels and *Cyrena*-brickearths of more southern districts. Gives reasons for believing that only 190 feet (and not the whole) of the Boston boring are thorough Drift.
W. T.

——. Kinahan's Geology of Ireland. *Geol. Mag.* dec. ii. vol. vi. pp. 236, 237.

Defends Jukes's work on the origin of the valleys in S.W. Ireland.

——. Jukes's Theory of River Valleys. *Geol. Mag.* dec. ii. vol. vi. pp. 431, 432.

In answer to **Kinahan**, see below, p. 22.

——. Chloritic Marl and Upper Greensand. *Geol. Mag.* dec. ii. vol. vi. pp. 47, 48, 143.

On the vertical limits of the U. Greensand, and on the place of the Warminster beds (see **Meyer**, *GEOLOGICAL RECORD* for 1878, p. 22).

Jukes-Browne, A. J. The Geology of the Lincolnshire Marshland. *Sci. Goss.* no. 179, pp. 242-245, 265, 266, sketch map. Reprinted from *Louth Times*.

Sketches of the physical geography, showing that the newer formations rest upon a floor of Chalk, which slopes up to a line of buried cliffs bordering the Wolds. Describes the probable conditions under which the Hesse Boulder Clay originated, and how the Marsh deposits were formed from its erosion.

A. J. J-B.

Kell, A. R. On a Section at the Barrow Collieries, Worsboro'. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 111-115.

Descriptive of sections of which the publication was deferred. The Silkstone seam was for the first time proved below the Barnsley.

Kell, G. J. On a Displacement or Wash-out of the Barnsley Bed of Coal, at Thrybergh Hall Colliery. *Trans. Midland Inst. Eng.* vol. vii. pt. xlviii. pp. 17-19; 2 pls. (plan and sections).

In one section the space originally occupied by the coal is filled up by sandstone for a length of 26 yards, when the coal is again regular for 220 yards, sandstone then again replacing it.

W. W.

Kendall, J. D. On the Hæmatite Deposits of West Cumberland. *Trans. N. Engl. Inst. Eng.* vol. xxviii. pp. 107-154, pls. xviii.-xxxiii.; Discussion, pp. 219-234, pl. xxxi.

Gives an outline of the Geology. The ore occurs in irregular accumulations in all the rocks older than the coal-bearing strata, but chiefly in the Carboniferous Limestone. Bands of shale and other indications of bedding are occasionally found extending uninterruptedly from the solid rock on each side of the deposit through the ore. From this and other reasons it is concluded that the ore has not always been deposited in cavities, but that it has taken the place of such parts of the rock as have been more easily affected by chemical action. Considers that the deposition of the ore is due to a ferriferous solution depositing the iron as fast as it took up the limestone. The iron was derived from a volcanic source. The occurrence of hæmatite in the form of pebbles in the Permian Breccias shows that the hæmatite is Pre-Permian, and that its deposition probably took place after the close of the Carboniferous period, when the rocks were immersed in the waters of the reddened Permian sea. This theory of the deposition of the ore being due to the replacement of part of the rock associated with the veins may be extended to the hæmatite deposits of other parts, as well as to many other metalliferous deposits, including those of Galena at Alston Moor. In the discussion further details and arguments are given.

J. G. G.

Kinahan, G. H. Cambro-Silurian and Silurian Rocks of the Southern and the Western parts of Ireland. *Proc. R. Dublin Soc.* n. ser. vol. ii. pt. ii. pp. 143-146, pl. 8 (sections); and *Journ. R. Geol. Soc. Ireland*, n. s. vol. v. p. 118.

Describes the relations of these rocks in the district. The Cambro-Silurians are divided into Upper, Ballymoney, and Dark Shale Series.

Kinahan, G. H. The Old Red Sandstone (so called) of Ireland in its Relations to the Underlying and Overlying Strata. *Proc. R. Dublin Soc.* n. ser. vol. ii. pt. ii. pp. 135-142, pls. 6, 7; and *Journ. R. Geol. Soc. Ireland*, n. s. vol. v. no. 2, pp. 106-113, pls. i.-iii. And, under the title "The Silurian Rocks of Ireland and their Relation to the Old Red Sandstone," in *Geol. Mag.* dec. ii. vol. vi. pp. 65-74, woodcut sections.

The Old Red of Ireland is two formations: the lower, or Dingle Beds, although containing fossils of a Carboniferous type, yet pass down into the Silurian; while the upper, which is separated from the lower by an unconformity, passes into the Carboniferous series. Concludes that, in Ireland at least, the name Old Red Sandstone should not be applied to any series of rocks as indicative that they are a distinct formation. J. G. G.

—. Dingle Beds and Glengariff Grits. *Proc. R. Dublin Soc.* n. ser. vol. ii. pt. iii. pp. 226-230, pl. 14; *Journ. R. Geol. Soc. Ireland*, n. s. vol. v. p. 165; and *Geol. Mag.* dec. ii. vol. vi. pp. 348-353.

Describes the rocks between Dingle and Bantry Bays. The plate gives a diagrammatic section, showing the relations between the rocks N. and S. of Dingle Bay. R. B. N.

—. Diagram of the Irish Palæozoic Rocks, showing a nearly continuous sequence from the Coal-measures to the Cambrian. *Trans. Manch. Geol. Soc.* vol. xv. pt. vii. pp. 176-183.

Describes the Dingle or Glengariff Beds as conformable to the Silurian, overlain by unconformable Carboniferous Old Red Sandstone, at Dingle Promontory, but conformably S. of Dingle Bay, where a continuous sequence exists from the Dingle Beds to the Carboniferous. C. E. R.

—. Sir R. Griffith and the Old Red Sandstone. *Geol. Mag.* dec. ii. vol. vi. p. 144.

—. Prof. Hull and G. H. Kinahan. *Ibid.* p. 237.

—. Jukes on River Valleys, S.W. Cork. *Ibid.* p. 333.

In answer to **Jukes-Browne**, see above, p. 20.

—. Devon Geology. *Ibid.* pp. 333, 334.

In answer to **Winwood**, see *post*.

Knight, J. R. Kent's Cavern. *Nat. Hist. Journ.* vol. iii. pp. 139-141.

Describes the cave-deposits.

Knowles, W. J. On Flint Implements from the Valley of the Bann. *Rep. Brit. Assoc.* for 1879, pp. 339, 340.

Near Portglenone; from a diatomaceous earth, used for brickmaking, which underlies peat.

Lamplugh, G. W. On the Divisions of the Glacial Beds in Filey Bay. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 167-177.

The sections of Drift in Filey Bay show a fuller series than elsewhere in Yorkshire, instead of only one division. Details are given, 8 divisions being made, and 5 at Dimlington. W. W.

Lamplugh, G. W. On the Occurrence of Freshwater Remains in the Boulder-Clay at Bridlington. *Geol. Mag.* dec. ii. vol. vi. pp. 393-399, woodcut section.

Above the basement clay is the laminated series, without shells. On these is the Purple Boulder-clay, with many beds of sand and gravel, without shells in the upper part. A deposit with vegetable matter and freshwater shells occurs here, and the gravels are also probably of freshwater origin. The large Shap granite boulders occur in the Purple Clay. W. K.

Lapworth, C. Recent Discoveries among the Silurian Rocks of South Scotland. *Trans. Glasgow Geol. Soc.* vol. vi. pp. 78-84.

Correlates the several subdivisions of these rocks with members of the older Palæozoic system elsewhere. Commencing with the Moffat series, he refers the Glenkiln division to the highest beds of the Llandeilo rocks, the Hartfell division to the horizon of the Bala beds, and the Birkhill Shales to the L. Llandovery. Palæontological evidence favours the view that the Graptolitic bands N. and W. of Moffat are repetitions of the Moffat series brought up along anticlinals, that the whole of the overlying greywackes from St. Abb's Head to the Mull of Galloway are as young as the Moffat series, and that the vast majority of them are of U. Llandovery age. Refers to the changes in lithological character and in thickness which these beds undergo in adjoining areas, and to the general relations of the higher strata of the districts adjoining.

J. G. G.

Lebour, Prof. G. A. Brief Notes on some of the Sections of the Carboniferous Limestone Series of Northumberland. *Trans. N. Engl. Inst. Eng.* vol. xxviii. p. 3.

Contains remarks upon the leading points of geological interest in the section described in a former communication. Account of borings and sinkings. J. G. G.

— On the Discovery of Marine Shells in the Gannister Beds of Ireland. *Rep. Brit. Assoc.* for 1878, pp. 539, 540. *Aviculopecten, Orthoceras, Goniates, and Encrinites* found.

Lecornu, L. Mémoire sur le calcaire carbonifère et les filons de plomb du Derbyshire. [Mountain Limestone and Lead Veins of Derbyshire.] *Ann. Mines*, ser. 7, t. xv. pp. 5-53.

Part 1 treats of the stratigraphy of the district. Part 2 of the relations of the veins to the adjoining rocks, their various forms, and their direction, the nature of the gangue, the mineral species associated with the galena (noting their mode and place of occurrence), the variations in richness of the metalliferous deposits, and the mode of formation of the veins. Concludes that the formation of the ore dates

from Pre-Triassic times. Part 3 treats of the modes of working, &c., with some statistics. J. G. G.

Lee, J. E. Notice of the occurrence of a Fish allied to *Coccosteus* in a bed of Devonian Limestone near Chudleigh. *Rep. Brit. Assoc.* for 1879, p. 332.

Associated with marine shells, and therefore not a freshwater fish.

——. Notice of Fossils found in a bed of Devonian Rocks at Saltern Cove, in Torbay, and in a quarry of the Old Red Sandstone, near Caerleon, in Monmouthshire. *Rep. Brit. Assoc.* for 1879, pp. 332, 333.

Like those at Büdesheim, in the Eifel, U. Devonian. Those from Caerleon are plants with *Pteraspis*.

Lewis, E. W. Lectures on the Geology of Leighton Buzzard and its Neighbourhood. 8vo. *Leighton Buzzard*.

Lindsay, W. L. Australian Gold-Quartz in Scotland. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 68–72.

Discusses the evidence for the native origin of certain specimens of gold said to be Scotch, and concludes that they are Australian.

Livesey, Clegg. Section of Strata at Bradford Colliery. *Trans. Manch. Geol. Soc.* vol. xv. pt. vii. pp. 161–175.

Describes the boring from the bottom of a trial shaft (carried 434 yards below Bradford four-feet coal), which reached the Parker Mine at 8 yards, and was carried a further depth of 157 yards without any workable seam being found. C. E. B.

Lobley, J. L. Excursion to the Gorge of the Mole, Box Hill, and Dorking. *Proc. Geol. Assoc.* vol. vi. no. 1, pp. 38, 39.

Lupton, Arnold. Note on the Midland Coalfield. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 187–190.

There is a great likeness in the coal-seams in the N. and S. Coal has been worked in the Millstone Grit. The chief seams are noticed.

M'Dakin, Captain. On some foliated Crystals of Heavy Spar or Sulphate of Barytes, from the interior of a *Septaria* found in the London Clay of the Isle of Sheppey; and on a *Septaria* from the Weald Clay of the Isle of Wight. 21 *Rep. East Kent Nat. Hist. Soc.* pp. 27–29.

——. On Gravel Beds. 21 *Rep. E. Kent Nat. Hist. Soc.* pp. 35, 36. Notes changes in the physical geography of S.E. England during the deposition of the Tertiary beds, and the animal remains found in the later Tertiary deposits. T. V. H.

Mackintosh, D. Results of a Systematic Survey, in 1878, of the Directions and Limits of Dispersion, Mode of Occurrence, and Relation to Drift-deposits of the Erratic Blocks or Boulders of

the West of England and East of Wales, including a Revision of many Years' previous Observations. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 425-455, map (of boulder dispersion).

Describes especially the dispersion of the Criffel and Eskdale granites, and the Arenig and Lake District volcanic rocks. The boulder-streams from these several centres cross each other; and their terminal limits sometimes vary. Believes that the dispersion is due to floating ice, the great accumulation of Criffel boulders near Wolverhampton marking the meeting-place of warm and cold currents. No certain instance of a striated rock-surface is known away from the Welsh hills and S. of Wirral. W. T.

Markham, C. R. The Valley of the Don. *Rep. Brit. Assoc.* for 1879, pp. 425-432; and *Proc. R. Geogr. Soc.* vol. i. pp. 675-680.

Part ii. of the Presidential Address to the Geographical Section. Treats of the relation of the geography to the geology of the region.

Marshall, W. On a Prehistoric Canoe from the Peat near Lynn. *Proc. Norwich Geol. Soc.* vol. i. pt. iii. p. 74. (6 lines.)

Meyer, C. J. Chloritic Marl and Upper Greensand. *Geol. Mag.* dec. ii. vol. vi. p. 143.

Answer to Jukes-Browne (see above, p. 20).

Mitchell, A. Geology of the Dalkeith Coalfield. *Coll. Guard.* vol. xxxviii. p. 851; *Contract Journal*, vol. ii. pp. 77-79.

Describes the structure of the field and the conditions of deposit.

Molynaux, W. The Forest of Wyre Coalfield. *Coll. Guard.* vol. xxxviii. p. 773.

Describes the coal-seams met with in sinking shafts near Highley.

Mortimer, J. R. The Chalk Water Supply of Yorkshire. *Proc. Inst. Civ. Eng.* vol. lv. pp. 252-258, pl. 9 (geol. map and sections).

The Chalk is 800 feet thick at Hornsea, at its N. and W. outcrop 300-500. The area of absorption is about 420 sq. miles. The area of the water-containing Chalk, measured to the sea-coast, is about 720 sq. miles. The water-line is an incline somewhat following the contours of the surface. In the Mid. Wolds the water-level is liable to great variation, sometimes exceeding 100 feet; but under Holderness no variation takes place. The intermittent surface-streams are called "gypseys." These are described, also the springs and some wells.

W. T.

Morton, G. H. Geology of the Isle of Man. *Geol. Mag.* dec. ii. vol. vi. pp. 211-213.

Confirms Cumming's description of Old Red Sandstone underlying the Mountain Limestone, in opposition to Howorth. See GEOLOGICAL RECORD for 1877, p. 22.

Morton, G. H. The Carboniferous Limestone and Cefn-y-fedw Sandstone of the Country between Llanymynech and Minera, North Wales. Pp. 140; 6 plates and 10 woodcuts. 8vo. *London*.

Reprinted from papers in the *Proc. Liverpool Geol. Soc.*, with slight additional information and the names of a few additional fossils.

Nash, Edwin. A Lecture on Pre-Adamite London. 8vo. *London*. Pp. v [=ix], 51; geol. map and section, woodcuts.

A sketch of the geology of the neighbourhood of London. Gives details of a railway-section near Orpington and of the Crystal Palace well. The map is taken from Ramsay, and the section (Hendon to East Wickham) from Mylne. W. W.

Nolan, J. On the Metamorphic and Intrusive Rocks of Tyrone. *Geol. Mag.* dec. ii. vol. vi. pp. 154-160; abstract in *Rep. Brit. Assoc.* for 1878, p. 536.

Describes the rocks under the following heads:—1. Schist and Gneiss; 2. Green metamorphic rock; 3. Quartz porphyry and granite. Regards some of the granites as intrusive in the Old Red Sandstone. W. K.

Oldham, T. B. Geological Section. *Rep. Rugby Nat. Hist. Soc.* for 1878, pp. 54-58.

List of additional species and localities. Notes on the M. Lias near Crick, objecting, on palæontological grounds, to the boundary of the M. Lias as marked on the Geological Survey maps; and lists of Tertiary and other fossils. T. V. H.

——. A few remarks on the Geology of the Neighbourhood of Rugby. *Rep. Rugby Nat. Hist. Soc.* for 1878, pp. 39-46, pl. 8 (section).

Describes the surface deposits and the Lias, the places where they are best seen, and the fossils found in them.

Parsons, Dr. H. F. The Trias of the Southern part of the Vale of York. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 154-162, pls. xi., xii. (section and geol. map).

The Trias occurs in patches only at the surface, from under Drift, which hides the junctions with the beds both above and below. The junction of Keuper and Bunter passes under Goole, as proved by wells there. The dip is calculated as about 1°, and the thickness of the Keuper and of the Bunter at about 700 and 1270 feet. Criticises some of the conclusions of the Geological Survey; gives a figure of a sand-pit at Balby, and details of a marl-pit and of 2 well-sections.

W. W.

——. Geology of the District around Bruton. *Proc. Somerset Arch. Nat. Hist. Soc.* ser. 2, vol. iv. pt. 2, pp. 38-42.

Notes on the Mendip Hills, the Oolites, and the Cretaceous rocks.

Peach, B. N., and John Horne. The Glaciation of the Shetland Isles. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 778–812, pl. xxxix. (map).

Describe the gneissic rocks and Old Red Sandstone with their associated igneous rocks, the glaciation and the glacial deposits. Conclude that the ice was Scandinavian. A list of Old Red Sandstone plants, by **C. W. Peach**, forms an appendix. W. H. D.

Pengelly, William. Fourteenth Report of the Committee for Exploring Kent's Cavern, Devonshire. *Rep. Brit. Assoc.* for 1878, pp. 124–129.

Describes explorations in the 'Tortuous Gallery,' 'Undervault,' 'Great Oven,' and 'High Chamber.' In the last, formerly called 'the Recess,' only a few pockets of cave-earth occur. The deposit is mainly breccia, covered with crystalline stalagmite: bones and teeth of bear, and some implements, were found. This is a remote part of the Cavern; and the tools were probably introduced from some opening yet unknown. W. T.

——. The Relative Ages of the Raised Beaches and Submerged Forests of Torbay. *Rep. Brit. Assoc.* for 1878, pp. 531, 532.

The subaërial deposit of angular materials of Paignton Cliff, which must have been formed since the elevation of the raised beach (the latter being the higher), passes under the peat; the beach therefore must be older than the forest. W. W.

——. Fifteenth Report of the Committee for Exploring Kent's Cavern, Devonshire. *Rep. Brit. Assoc.* for 1879, pp. 140–147.

Describes explorations in the 'High Chamber,' 'Swallow Gallery,' and 'Clinnick's Gallery.' The Swallow Gallery is a branch of the High Chamber, and leads to old entrances to the Cavern. The deposit explored was, in each case, the breccia or oldest. W. T.

——. The Metamorphosis of the Rocks extending from Hope Cove to Start Bay, South Devon. *Trans. Devon. Assoc.* vol. xi. pp. 319–342.

Refers to the discovery of granite on the sea-bottom at the Salcombe Fishing Grounds, and points out its bearing on the question of the origin of the metamorphism of the South Devon rocks. J. G. G.

Phillips, W. Guide to the Botany, Ornithology, and Geology of Shrewsbury and its Vicinity. The Geology by **Dr. C. Callaway**. 8vo. *Shrewsbury*. Price 1s.

Plant, James. Report (to the Local Board of Health) on the Water Supply, for the Town of Hinckley, Leicestershire, from the Underground Sandstones of the Triassic Formation. 8vo. Pp. 12. *Hinckley*.

The present supply is from shallow wells through Drift gravel. A bore-

hole has been made through 150 feet of Drift, 30 of Upper Sandstone, 250 of red marl, 150 of Waterstones. Waterstones will yield a good supply at greater depth and with a larger bore. Gives examples of bore-holes in the district. W. T.

Plant, John. Shap Granite in the Boulder Clay, in Lower Broughton. *Trans. Manch. Geol. Soc.* vol. xv. pt. viii. pp. 194-196.
Found 20 feet down, at Broughton Bridge, in the Irwell valley.

Plunkett, Thos. Report of the Committee on the Fermanagh Caves. *Rep. Brit. Assoc.* for 1878, pp. 183-185.
Describes explorations in the 5 caves. The remains are recent and Neolithic.

Pratt, Arthur. Scottish Trap Rocks and their Structure under the Microscope. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 58-62.
A general description, accompanied by remarks upon the method of preparing rock-slices for microscopic examination.

— Notes on Crinoids from Inverteil, Fifeshire. *Trans. Geol. Soc. Glasgow*, vol. vi. part i. pp. 25, 26.

Records the occurrence of seven species from Carboniferous shale; refers also to a few fossils of other kinds.

Prestwich, Prof. Joseph. On the Origin of the Parallel Roads of Lochaber, and their Bearing on other Phenomena of the Glacial Period. *Phil. Trans.* vol. 170, pt. ii. pp. 663-726 (1879), pl. 46 (map), woodcuts.

Notices the Detrital, Marine, and Glacial theories, and the objections to them, and holds to the last, modified. Discusses the glaciation of Lochaber and the exceptional condition of the ice-sheet there, the distribution of detritus, the former level of the land, and the effects of later submergence. Describes the structure of the terraces and the irregularities in their levels, they being slightly waved and not perfectly horizontal; from which, and the want of agreement in their levels and those of the cols, the roads cannot be referred to a definite water-level. Concludes that in early Glacial times there was a heaping up of ice in front of the glens; that the land sunk and the climate grew milder, leading to the formation of lakes, dammed by ice; that the formation of the terraces is due to the bursting of minor barriers, rapidly letting down the water to the level of the col, the debris on the hill-sides sliding down after the retreating water. The literature of the subject is referred to at length: and many sections are given. W. W.

— On the Discovery of a Species of Iguanodon in the Kimmeridge Clay near Oxford; and a Notice of a very Fossiliferous Band of the Shotover Sands. *Geol. Mag.* dec. ii. vol. vi. pp. 193-195.

This Iguanodon from Cumnor is a smaller and more slender animal

than *I. Mantelli*. Freshwater shells occur abundantly in the sand near Wheatley. W. K.

[Prestwich, Mrs.] Lochaber and the Parallel Roads. *Good Words*, February, pp. 119-123, woodcut.

Describes the district, discussing the theories of a freshwater lake with a barrier of ice or of detritus and of marine submergence. The ice-barred lake is probably the truer theory. W. T.

Price, F. G. H. The Gault, being the Substance of a Lecture delivered in the Woodwardian Museum, Cambridge, 1878, and before the Geologists' Association 1879. Pp. 80. 8vo. *London*. Price 3s. 6d. Analysis by Dr. C. Barrois, *Ann. Soc. Géol. Nord*, t. vi. pp. 225, 226.

The description of the Gault (in two unconformable divisions) is preceded by a bibliography and a sketch of the hydrography of the period, and followed by an account of the French Gault, and a Table (nearly 40 pp.) of the range of about 800 species, exclusive of Foraminifera, in 15 English and 10 French localities or divisions. W. H. D.

Reade, T. M. On a Section of Boulder-clay and Gravels near Ballygalley Head, and an Inquiry as to the proper Classification of the Irish Drift. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 679-681.

Finds no evidence of variations of climate within the Glacial Period.

——. Notes on the Scenery and Geology of Ireland. *Proc. Liverpool Geol. Soc.* vol. iv. pt. i. pp. 64-89; 7 plates (views).

Notifies the raised beaches of Belfast Lough, the geology of the coast of Antrim and Donegal (noting the great amount of denudation that has occurred since the date of the Miocene lavas), of Sligo and Mayo (noting the connection of Dorinch with another island by a shingle-ridge), and of Galway. Describes the limestone terrace of the Burren and the Drift of Galway Bay, and criticises theories of the Irish Drift. W. W.

——. A Problem for Irish Geologists in Post-Glacial Geology. *Proc. R. Dublin Soc.* n. ser. vol. ii. pp. 255-260, pl. 19 (section).

Refers to sections in docks on the Mersey, showing gullies cut in Boulder Clay to below low-water level, and filled with silt, sand, and peat, which give evidence of land-movements. Asks whether there are like evidences in Ireland, and refers to records of submerged forests, &c. W. W.

Reeve, J. List of Fossils from the Norwich Crag at Bramerton. *Proc. Norwich Geol. Soc.* vol. i. pt. iii. pp. 69-72.

Shows the comparative abundance of the species in the upper and lower beds of the Bramerton Common pit and in Blake's pit.

Reid, Clement. The Glacial Deposits of Cromer. *Quart. Journ. Geol. Soc.* vol. xxxv., *Proc.* pp. 105, 106, abstract only (in full in *Geol. Mag.* dec. ii. vol. vii. pp. 55-66, 1880).

Ricketts, Dr. Charles. On some remarkable Pebbles in the Boulder-clay. *Proc. Liverpool Geol. Soc.* vol. iv. pt. i. pp. 10-17, plate. Abstract (longer title) in *Rep. Brit. Assoc.* for 1879, pp. 339, 340. Describes various weathered specimens from Lancashire and Cheshire, and discusses their origin, concluding that they have formed part of moraines. Gives a section at Bootle Dock. W. W.

Robertson, David. On the Presence of Hermit Crabs in the Post-Tertiary Clays of the Clyde Basin. *Trans. Glasgow Geol. Soc.* vol. vi. pt. i. p. 23. Claws of Hermit Crabs of species as yet undetermined are commonly met with; other crabs were either rare or absent altogether.

— On the Post-Tertiary Fossiliferous Bed at the New Gas Tank, Paisley. *Trans. Glasgow Geol. Soc.* vol. vi. pt. i. pp. 53-57, pl. i. Records the occurrence of an antler of *Cervus elaphus* in a bed of black mud overlying clay with marine shells of arctic types, but not proved to be of the same age. Gives a figure of the antler. J. G. G.

— Additions to the List of Polyzoa of Garvel Park Post-Tertiary Deposit. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. p. 57. Notes 15 additional species, making a total of 28.

Rowe, T. P., and Dr. C. Le N. Foster. Observations on Balleswidden Mine. *Trans. R. Geol. Soc. Cornwall*, vol. x. pt. i. pp. 10-17, plate. (Entered by mistake in the GEOLOGICAL RECORD for 1878, p. 206.)

The tin-ore occurs in narrow veins; and the granite on the sides of the veins is altered into a mixture of quartz, schist, and gilbertite, with a little mica, fluorspar, and tinstone. Several adjacent parallel veins, with the intervening bands of more or less altered granite, constitute what the miners called a *lode*. C. L. N. F.

Buddy, Thomas. On the Upper Part of the Cambrian (Sedgwick) and Base of the Silurian in North Wales. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 200-208, 6 woodcuts (sections). Describes beds in the Bala, L. Llandoverly, and Tarannon series near Bala and Corwen, along the lines of the sections.

Shipman, J. An Excursion to Froghall, Caldon Low, and Alton. *Midl. Nat.* vol. ii. pp. 248-252. Gives an account of the rocks seen.

Skertchly, S. B. J. On the Manufacture of Gun-flints, the Methods of Excavating for Flint, the Age of Palæolithic Man, and the Connexion between Neolithic Art and the Gun-flint Trade. Pp. x, 80; 5 plates (woodcuts separately printed). *Geol. Survey Memoir*. 8vo. London. Geological position of the flints, pp. 5-15, with sections at Lingheath, Santon Downham, Broomhill, Icklingham, and Elvedon. Method

of digging, etc., pp. 21-27. Age of Palæolithic Man, pp. 65-69. Notices the succession of Glacial beds in E. England (11 divisions). There are 3 stages in which palæolithic implements have been found—2 newer than the Chalky Boulder Clay (but yet Inter-Glacial), and the other older than it. The last is here named "Brandon Beds." W. W.

Skertchly, S. B. J. Evidence of the Existence of Palæolithic Man during the Glacial Period in East Anglia. *Rep. Brit. Assoc.* for 1879, pp. 379, 380.

Describes sections of loam, &c., containing implements, beneath the Boulder Clay, at Mildenhall.

—. On a New Estimate of the Date of the Neolithic Age. *Rep. Brit. Assoc.* for 1879, pp. 380, 381.

From the rate of increase of the margins of the Fenland, since Roman times, calculates that about 7000 years is required for the least possible age of the newest peat; this is late Neolithic. W. T.

—. On the Survival of the Neolithic Period at Brandon, Suffolk. *Rep. Brit. Assoc.* for 1879, pp. 400, 401.

Describes the workings for flint in the Chalk, and traces back the trade.

Smith, W. G. On Palæolithic Implements from the Valley of the Lea. *Journ. Anthropol. Inst.* vol. viii. pp. 275-279.

In gravel pits at West Hackney, Upper and Lower Clapton, and other places.

Sollas, Prof. W. J. On the Silurian District of Rhymney and Pen-y-lan, Cardiff. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 475-507, pl. xxiv. (fossils); 5 woodcuts (geol. map and sections). Abstract in *Proc. Bristol Nat. Soc.* n. ser. vol. ii. pp. 239, 240.

The Silurians are brought up by two anticlinals having a general strike of W.N.W. to E.S.E. Their total thickness exposed is about 950 feet; 364 of which are Ludlow, the remainder probably Wenlock, which here contains *Pentamerus oblongus*. Lists of fossils from the more important beds are given; also notes on the nature of the rocks. The thickness of the Old Red in this district is probably a little over 4000 feet. It and the Silurian thin S., pointing probably to a shoreline in that direction—the barrier which divided the Old Red from the Devonian waters. The following new species are described and figured:—From the Ludlow Beds: *Orthonotus navicula*, *Leda? ambigua*. From the Wenlock Beds: *Modiolopsis acutiprora*, *Ambonychia? tumida*, *Holopella gracilis*, *H. hydropica*, *H. minuta*, *Cyclonema angulatum*, *C. simplex*, *C. turbinatum*, *Murchisonia elegans*, *M. corpulenta*. W. T.

—. On some Three-toed Footprints from the Triassic Conglomerate. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 511-516, woodcut.

Found in a quarry at Newton Nottage, Glamorganshire (section

given); 5 footprints are described; and on them is founded *Brontozoum Thomasi*, n. gen. and sp. A supplement, by J. Storrie, notes the range of the beds and their microscopic character. W. H. D.

Stewart, J. F. On the Discovery of Whale Remains in the Clays of the Carse of Stirling. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 49-51.

At Woodyet, about a mile E. of Gargunnoch station, the skull and several vertebræ of a whale were found in clays containing recent forms of marine Ostracoda and Foraminifera, about 35 feet above the mean sea-level. J. G. G.

Stoddart, W. W. Geology of the Bristol Coalfield. Part 5. Jurassic. *Proc. Bristol Nat. Soc.* n. ser. vol. ii. pp. 279-291.

Describes the Rhætic Beds, Lias, and Inferior Oolite of Dundry Hill; and gives a list of fossils from the Lias and Inferior Oolite.

Strahan, Aubrey. On some Glacial Striæ on the North Wales Coast. *Proc. Liverpool Geol. Soc.* vol. iv. pt. i. pp. 44-46.

At Llandudno, Lychnant Pass, Llandulas Station, Moel Hyraddog, Craig Fawr, and Holloway, ranging from 50 to 815 feet; direction chiefly N.E. to S.W., overlain by Boulder Clay. C. E. R.

——. Geology of the Isle of Man. *Geol. Mag.* dec. ii. vol. vi. p. 286.

Supports Morton's statement. See above, p. 25.

——. Beekite in Flintshire. *Geol. Mag.* dec. ii. vol. vi. p. 334.
It replaces shells in limestone.

Strahan, A., and A. O. Walker. On the Occurrence of Pebbles with Upper Ludlow Fossils in the Lower Carboniferous Conglomerates of North Wales. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 268-274, woodcut (section).

Describe the occurrence of L. Carboniferous rocks over Wenlock beds, westward of Abergele. The former contain red and green pebbles of Ludlow beds as well as of Wenlock Sandstone, the origin of which is discussed. W. H. D.

Swanston, William. On Supposed Fossiliferous Pliocene Clays overlying Basalt, near the Shore of Lough Neagh. *Geol. Mag.* dec. ii. vol. vi. pp. 62-65.

The supposed Pliocene shell proves to be *Mytilus edulis* and the clay of the Crumlin River is newer than the Lough Neagh clays.

Tate, Thomas. The Source of the River Aire. *Proc. Yorksh. Geol. Soc.* vol. vi. pt. ii. pp. 177-186.

Gives the result of experiments which proved that the streams at Malham Cove and Airehead are supplied from Malham Tarn, by way of the "Watersinks." W. W.

Tate, Thomas. Note on an Intermittent Spring at Malham. *Proc. Yorksh. Geol. Soc.* vol. vi. pt. ii. pp. 186, 187.

At the foot of Cowden Hill (limestone) a spring breaks out about once in 5 years, and flows as a torrent for 7 or 8 hours. Explains this on the syphon-theory. W. W.

Taylor, J. E. Faults in the London Clay, near Harwich. *Geol. Mag.* dec. ii. vol. vi. p. 383.

Shown in a new section, for docks, at Ray Island.

——. The Derbyshire Caverns. *Sci. Goss.* no. 176, pp. 173, 174. Describes a visit to the Speedwell Mine, near Castleton.

——. A Naturalist's Holiday at Felixstowe. *East Anglian Holiday Annual, Summer 1879*, pp. 41–44. 8vo. *Norwich*. Price 6d. Contains notes on the geology.

Tiddeman, R. H. Sixth Report on the Exploration of the Settle Caves (Victoria Cave). *Rep. Brit. Assoc.* for 1878, pp. 377–380.

A letter from **Prof. Busk** states that the fibula, previously supposed to be human, is probably ursine. Recapitulates other evidence tending to establish the existence of Man in the N. of England before the Glacial period closed. W. T.

Topley, W. The Valley of the Aln, its Geology and Scenery. *Alnwick Mercury*, Nov. 17.

Report of a lecture. Describes the Carboniferous and Igneous rocks of Northumberland.

Traill, W. A. On the Rocks of Ulster as a Source of Water-Supply. *Rep. Brit. Assoc.* for 1878, pp. 537, 538.

The New Red Sandstone, Chalk, and Greensand are the water-bearing beds, the Palæozoic, Keuper Marls, and Lias being unproductive. W. T.

Twigg, G. H. Examination of Drift in a Railway Cutting near Walsall. *Midl. Nat.* vol. ii. pp. 201, 202.

Ussher, R. J., and Prof. A. Leith-Adams. Notes on the Discovery in Ireland of a Bone Cave, containing Remains of the Irish Elk, apparently co-existent with Man. *Proc. R. Dublin Soc.* n. ser. vol. ii. pt. iii. pp. 234–236; *Journ. R. Geol. Soc. Ireland*, n. ser. vol. v. pt. 2, p. 170; and *Rep. Brit. Assoc.* for 1879, pp. 338, 339.

This cave is near the Shandon Cave, Cappagh. It has yielded Neolithic implements, &c., as well as the remains of Irish elk, bear, deer, &c. R. B. N.

Ussher, W. A. E. Historical [continued as "Post-Tertiary" and "Pleistocene"] Geology of Cornwall. *Geol. Mag.* dec. ii. vol. vi. pp. 27–36, 74–81, 102–110, 166–172, 203–211, 251–263, 307–313, pl. iii. (map), woodcuts. 1879.

Summary of records and traditions of changes in the sea-level, inundations, &c. History of St. Michael's Mount. The various superficial deposits are described, and their origin considered. Also Raised Beaches, Submerged Forests, Blown Sands, &c. W. K.

Ussher, W. A. E. Facta non Verba. *Geol. Mag.* dec. ii. vol. vi. pp. 93, 94.

Refers to Hull's paper on the Devonian Rocks (see p. 19).

— The Post-Tertiary Geology of Cornwall. Pp. iii, 59, plate (sections) and woodcuts. 8vo. *Hertford*. Printed for private circulation. Partly in abstract (2 papers) in *Quart. Journ. Geol. Soc.* vol. xxxv., *Proc.* pp. 5-7, with Discussion.

Gives many fresh details of sections, with references to other works. The plate refers to St. Agnes sections. The deposits along the coast are largely referred to. Part ii. is a classification of the beds, with a table; and there are notes on the Pleistocene deposits of the coast near Padstow. W. W.

— On the Deposits of Petrockstow in Devon. *Trans. Devon. Assoc.* vol. xi. pp. 422-428.

Describes deposits of "head" gravel and clay on Petrockstow Moor; treats of their mode of formation (probably lacustrine), and concludes that the clay may be of the same age as the Bovey Beds. W. W.

Vicary, William. Miocene or Eocene? Age of the Bovey Lignites. *Geol. Mag.* dec. ii. vol. vi. p. 240.

Suggests that these Plant-beds may be Cretaceous.

Wallis, T. W. [About Marshland Sea Shores.] *Louth Times*, May 3. Refers to the tree-stumps exposed at low tide at Maplethorpe.

Ward, Rev. J. C. On the Physical History of the English Lake District. With Notes on the Possible Subdivision of the Skiddaw Slates. *Geol. Mag.* dec. ii. vol. vi. pp. 49-61, 110-125, pl. ii. (map and sections).

A general account of the rocks of the district and the physical conditions under which they were formed. Gives estimates of the rate of formation and denudation of the rocks, and infers from physical evidence that the Skiddaw Slates include representatives of the Arenig Slates, Arenig Grit, Tremadoc Slates, and Lingula Flags. W. K.

Ward, Rowland. Discovery of Mammoths and other Extinct Fossil Animals at Charing Cross. Reprint of a letter in the *Standard* and other papers of April 28, 29.

Specimens from excavations for Drummond's new bank, London.

White, J. N. The Irish Elk and Man. *Nat. Hist. Journ.* vol. iii. p. 96.

In a newly found Cave, in the W. of Co. Waterford, bones of *Cervus Megaceros*, split and formed into implements by the hand of man, have been found. T. V. H.

Williams, William. On "*Cervus Megaceros*." *Rep. Brit. Assoc.* for 1878, p. 537.

From the Bog of Ballybetagh, 10 miles from Dublin. The clay containing the bones rests on L. Boulder Clay, and is covered by a clay supposed also to be of glacial origin. W. T.

Williams, W. M. On the so-called "Crater Necks" and "Volcanic Bombs" of County Antrim, Ireland. (Abstract.) *Proc. Geol. Assoc.* vol. vi. no. 2, pp. 80-82.

These are conglomerates of late date, baked by volcanic action.

——. Notes on the Glaciation of Ireland and the Tradition of Lough Lurgan. *Rep. Brit. Assoc.* for 1878, pp. 528, 529.

Describes the mode of glaciation of Ireland, and the deposition of the Glacial detritus. The traditional bar separating Galway Bay as a lake from the Atlantic has some foundation in fact. W. H. D.

Wilson, E. On the South-Scarle Section. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 812, 813.

Shows that the limestones near the bottom of this boring are Marl Slates, and that the underlying red clays are U. Coal Measures.

——. The Age of the "Pennine Chain." *Geol. Mag.* dec. ii. vol. vi. pp. 500-504; *Midl. Nat.* vol. iii. pp. 1-4; and *Rep. Brit. Assoc.* for 1879, pp. 343, 344.

This chain is older than the Magnesian Limestone; for the great Yorkshire coal basin was formed before the Permian period; the Marl Slates alternate in a westerly direction, as if approaching a margin. The Permian breccia is largely composed of Coal Measure rocks, and the Permian rocks on the opposite sides of the Pennine chain are unlike. W. K.

Wilson, E., and J. Shipman. On the Occurrence of the Keuper Basement Beds in the Neighbourhood of Nottingham. *Geol. Mag.* dec. ii. vol. vi. pp. 532-535.

Between the Waterstones and the Bunter Pebble Beds occur in some places the white sandstones and conglomerates known as the Basement Beds, which form so important a feature in the Keuper of the West Midlands. W. K.

Winwood, [Rev.] H. H. Geology of North Devon. *Geol. Mag.* dec. ii. vol. vi. p. 236.

In answer to Kinahan (see above, p. 22).

——. Summary of Proceedings for the Year 1878-9. *Proc. Bath Field Club*, vol. iv. pp. 150-179.

Excursion to Haresfield Beacon, with notes by E. Witchell (pp. 170-172).

Woodward, Dr. Henry. On the Occurrence of *Branchipus* (or *Chirocephalus*) in a Fossil State, associated with *Eosphaeroma* and with numerous Insect-remains in the Eocene Freshwater (Bembridge) Limestone of Gurnet Bay, Isle of Wight. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 342-350, pl. xiv. Abstract [with fuller list of Insects] in *Geol. Mag.* dec. ii. vol. v. pp. 88, 89 (1878).

Notes the section at Thorness and Gurnet Bays, gives a list of insects, and describes the new genera and species *Branchipodites vectensis*, *Eosphaeroma fluviatile*, and *E. Smithii*, quoting descriptions of some previously known Isopoda. W. H. D.

Woodward, H. B. On a Disturbance of the Chalk at Trowse, near Norwich. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proceedings*, p. 106 (Abstract).

Due to the land-ice; an incipient formation of a huge chalk boulder.

——. The Mammoth not Pre-glacial in Britain. *Geol. Mag.* dec. ii. vol. vi. p. 235.

Points out the unsatisfactory nature of the evidence for the Pre-glacial age of the Mammoth

——. Fossils on Cleavage Planes. *Geol. Mag.* dec. ii. vol. vi. p. 575.

Suggests that the positions in which some Devonshire fossils were imbedded happened to coincide with the cleavage-planes.

——. A Memoir of Samuel Woodward. *Trans. Norfolk Nat. Soc.* vol. ii. pp. 563-593.

A biography, with memoranda on the geology of Norfolk, notes on Hoxne, the formation of Barton Broad, &c.

——. Discovery of a Fossil Freshwater Tortoise in Norfolk. *Midl. Nat.* vol. ii. p. 189.

It is the common *Emys lutaria*, and was found in the Post-glacial Freshwater bed at Mundesley.

Young, John. Notes on the Limestone Strata of the District around Glasgow. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 29-38.

Describes the chief lithological and palæontological characters that distinguish the L. Carboniferous beds around Glasgow. Gives tables showing the order of succession in several localities, and observations upon the mode of formation of the beds. J. G. G.

Guide to the Town and District [of Sheffield]. (*British Association.*) Edited by **John Taylor**. 8vo. *Sheffield*. Pp. viii, 160; map (not gcol.).

Prof. A. H. Green. Geology, pp. 73-93. Describes the rocks of the district, Permian to Carboniferous Limestone.

- Rev. J. M. Mello.** Notes on the Creswell Bone Caves, pp. 93–106.
G. R. Vine. Natural History, pp. 101–111. Refers only to Geology and Palæontology. W. T.

Report of a Committee consisting of **Professors Rolleston, Busk, and Dawkins, Maj.-Gen. Lane Fox, Dr. J. Evans, and F. G. H. Price**, appointed for the purpose of examining Two Caves containing human remains in the neighbourhood of Tenby. *Rep. Brit. Assoc.* for 1878, pp. 209–217.

At Longbury Bank; used by man at least as early as when *Ursus arctos* was living in the country. Later human remains were introduced through a “segment of depression” from a burial place which had existed over it whilst it was yet only an “initiatory area of depression” [were let down by a swallow-hole]. W. T.

SUPPLEMENT FOR 1874, 1876–1878.

Anon. [Excursion to Chipping Norton.] *Proc. Warwicksh. Field Club*, 1876, pp. 29–32.

Lists of fossils of Inferior Oolite and M. Lias.

——. [Excursion to E. Kent.] *Ibid.* pp. 34, 35.

——. [Excursion to Brickhill, Beds.] *Ibid.* pp. 38–41.

List of ? derivative fossils in L. Greensand.

——. Geology of Shropshire and South Staffordshire. *Coll. Guard.* vol. xxxiv. p. 347. [1877.]

Bonney, Prof. T. G. On the Rocks of the Lizard District. *Proc. Camb. Phil. Soc.* vol. iii. pt. 3, p. 85. [1878.] A shorter version of the paper noticed in the GEOLOGICAL RECORD for 1877, p. 196.

Brodie, Rev. P. B. On a further extension of the Rhætics (or Penarth beds) in Warwickshire, Leicestershire, Nottinghamshire, Rutland, Lincolnshire, Yorkshire, and Cumberland, and on the occurrence of some supposed remains of *Labyrinthodon* and a new Radiate therein. *Proc. Warwicksh. Nat. Club*, 1876, pp. 1–11. Abstract (*Rep. Brit. Assoc.*) noticed in the GEOLOGICAL RECORD for 1876, p. 6.

Cossham, H. Bristol Coalfield. *Coll. Guard.* vol. xxxii. p. 698. [1876.]

Hall, Rev. G. R. On a Piece of Timber recently encrusted with Carbonate of Lime from a Coal-Pit near Gunnerton, North Tyndale, with some Remarks on the Rate of Formation of similar

Deposits in Ossiferous Caves, in Connection with the Antiquity of Man. *Nat. Hist. Trans. Northumberland*, vol. vii. pt. 1, pp. 88-96.

[1878.]

In the Carboniferous Limestone series. Section of the pit given. A quarter of an inch of stalagmite formed in 11 years.

Homersham, S. C. Report on the Well Bore Hole, . . . &c. . . .

Appendix (pp. 43-49) of Report of the Committee of Visitors of the Lunatic Asylum for the Counties of Bedford, Hertford, and Huntingdon, ... for 1876. 8vo. *St. Neots*, 1877.

Refers to the well (in L. Chalk and L. Greensand), and gives an analysis of the solid matter in the water by **Dugald Campbell**.

Howse, Richard. [Geological Notes on the Excursion to Stanhope Burn and Heathery Burn Cave.] In the Address of the President (Dr. G. H. Philipson). *Trans. Nat. Hist. Soc. Northumberland*, vol. vii. pt. 1, pp. 11-14. [1878.]

——. Note on the Discovery in 1836-7 of a Fossil Fish (*Acrolepis Rookbyi*, n. s.) in the Upper Devonian of the Magnesian Limestone at Marsden. *Trans. Nat. Hist. Soc. Northumb.* vol. vii. pt. 1, pp. 171-173. [1878.]

——. Preliminary Notice of the Occurrence of *Archæonodon (Anodontia) Jukesii*, Forbes, in the Lower Carboniferous Rocks of North Northumberland. *Ibid.* pp. 173-175, plate xiv. [1878.]

In sandstone, on the E. side of the river Till.

Hughes, Prof. T. McK. On the Base of the Silurian System. *Proc. Camb. Phil. Soc.* vol. iii. pt. 3, p. 67. [1878.]

Describes the stratigraphical relation of the beds in the N.W. of England, from below the Coniston Flags to the various members of the older series, and points out the bearing of this stratigraphical relation upon the classification of the older Palæozoic rocks there and in Wales. Supports the view by palæontological evidence. J. G. G.

——. On the Base of the Cambrian Rocks in North Wales. *Proc. Camb. Phil. Soc.* vol. iii. pt. 3, p. 89. [1878.]

Near Bangor and Carnarvon occur Arenig Beds, Lingula Flags, and Harlech Grits, with a coarse grit and conglomerate at the base. Slates, breccias, and porphyries occur below these, and rest upon quartzites, which seem to pass down into a syenite-like rock (metamorphic?). There is no evidence of any discordance between the members of the older set; but the conglomerate may be transgressive across the older series; and as it contains fragments of all the older series, it should be taken as the base of the Cambrian. The beds below it are volcanic. J. G. G.

Hull, Prof. E. On the Origin of "The Scalp," a remarkable Cleft in the Granite Hills South of Dublin. *Proc. R. Dublin Soc.* n. s. vol. i. pp. 11-17. [1877.]

This gorge, now occupied by a brook, was cut by the Shanganach before the Glacial period. The denudation of the Carboniferous beds having been greater than that of the metamorphic area has resulted in the diversion of the river to its present position. W. H. D.

Marr, J. E. Note on the Phacopidæ of the Lake District. *Proc Camb. Phil. Soc.* vol. iii. pt. 3, p. 68. [1878.]

Gives a list of the principal species of *Phacops*, and of the beds they characterize. Considers that the palæontological evidence shows that the U. Bala Shales are newer than the Coniston Limestone, and are not its equivalent in time. Refers to the palæontology of other beds of the same district. J. G. G.

Munford, Rev. George (the late). *Geology and Natural History of Hunstanton*. Pp. 40-50 of Ed. 4 of "Hunstanton and its Neighbourhood" 8vo. *Lynn and London*, 1874.

Describes the Cliff-section, pp. 40-42, and the Submarine Forest, pp. 49, 50. A flint celt was found in one of the trees. Ed. 6 in 1879, Ed. 7 in 1881 (geology, pp. 65, 66, 86). W. W.

Porte, George. Remarks on the Recent Discovery of Remains of the *Cervus Megaceros* at Ballybetah. *Proc. R. Irish Ac.* vol. ii. ser. ii. no. 7, pp. 738-741. [1877.]

Shoolbred, J. N. On the Changes in the Tidal Portion of the River Mersey and its Estuary. *Proc. Inst. Civ. Eng.* vol. xlv. pp. 20-49, pls. 3-7; Discussion, pp. 50-60. [1876.]
Describes changes in the river-channels, sandbanks, &c.

Smith, E. J. A. Discovery of remains of Plants and Insects. *Nature*, vol. xi. p. 88. [1874.]

Note on Tertiary beds, Gurnet Bay, I. of Wight. See **Woodward**, above p. 36, for description of species.

Stelzner, Alfred. Das Zinnerzvorkommen auf der Grube East Wheal Lovell in Cornwall. [Tin Works of East Wheal Lovell, Cornwall.] *Verh. bergm. Ver. Freiburg*, 1876.

From Dr. C. L. N. Foster's paper, noticed in the GEOLOGICAL RECORD for 1876, p. 12.

Stirrup, Mark. The Raised Beaches of County Antrim; their Molluscan Fauna, and Flint Implements *Proc. Lit. Phil. Soc. Manch.* vol. 16, pp. 51-56. [1877.]

Near Larne, Glenarm, Waterloo, Kilroot, and Port Scaddam (Port-rush); varying from 5 to 20 feet above H.W.M. A list of shells from each place is given. The implements are from the raised beach at Larne, and from the more recent gravels along the coast at Kilroot, Ballygally, &c. They are flakes, cores, and scrapers of Palæolithic type.

W. T.

Wheeler, W. H. Fascine Work at the Outfalls of the Fen Rivers, and Reclamation of the Foreshore. *Proc. Inst. Civ. Eng.* vol. xlv. pp. 61-73, pl. 8 (map); Discussion, pp. 74-80. [1876.]
The map shows the enclosures of the 17th, 18th, and present centuries.

Wilson, E. A short Notice of a new Exposure of Rhætics near Nottingham? *Quart. Journ. Geol. Soc.* vol. xxxiii., *Proc.* pp. 1, 2. [1877.]
Describes the Barnston railway-cutting, 10 miles E.S.E. of Nottingham.

Young, John. Notes on the occurrence and distribution of *Spirifera trigonalis* and its varieties in the Limestone Strata of the Coalfields of the West of Scotland. *Proc. Nat. Hist. Soc. Glasgow*, vol. iii. pt. i. pp. 37-41. [1876.]
Occurs first in a bed of coal next above the volcanic series (Calcareous Sandstone?).

See also:—

Allport, S. Diorites of Warwickshire Coalfield: *post*, PETROLOGY.

Bennett, F. J. Geology of part of Suffolk: *post*, APPLIED GEOLOGY.

Tomes, R. F. Great or Coralline Oolite: *post*, INVERTEBRATA.

Ussher, W. A. E. Devon Trias referred to: *post*, under EUROPE.

Woodward, H. B. Mundesley River Bed: under Newton, *post*, VERTEBRATA.

2. EUROPE.

[MR. W. TOPLEY and MR. W. H. DALTON have given much help in the preparation and printing of this section.]

Achiardi, A. d'. [Origin of Leghorn Chalk.] *Proc.-verb. Soc. Tosc. Sci. Nat.* p. lv.

Achiardi, Antonio d', and L. Bisatti. Ossa animali e resti dell' industria umana rinvenuti in una breccia ossifera nel Monte Argentario. [Bones and Industrial Relics in Breccia of Mt. Argentario.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxvii, lxviii.

Note on cave-remains.

Acy, E. d'. Observations sur le gisement quaternaire de Thennes, Somme. [Quaternary Deposit of Thennes.] *Mat. Hist. Homme*, sér. 2, t. x. p. 182.

Alford, J. T. The Mineralogy of the Island of Sardinia. *Iron*, pp. 488, 520, Oct. 17, 24. Abstract of paper printed in full in *Trans. Soc. Engineers*, 1880.

Alth, Dr. Alojz. Sprawozdanie z badań geologicznych przedsięwziętych w r. 1878 w Tatrach galicyjskich. [Geological Tour in the Galician Tatra.] *Sprawozd. Kom. Fizyogr. Krakow*, t. 13, pp. 243-263.

These metamorphic rocks have yielded *Aptychus*, *Nummulites*, and *Terebratulæ*. Their age is uncertain.

Anon. Lignite in Eastern Europe. (From *Journal of Gas Lighting*.) *Journ. Soc. Arts*, vol. xxviii. no. 1412, p. 63.

Arnaud, H. Danien, Garumnien et Dordonien. *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 78-87.

Deals with the range of fossils, classing the Garumnian as U. Danian, and the Dordonian as L. and M. Danian and L. Garumnian.

Baills, —. Note sur les mines de fer de Bilbao. [Bilbao Iron Mines.] *Ann. Mines*, sér. 7, t. xv. pp. 209-233, pl. v. (geol. map and section). Abstract, by **R. Adan de Yarza**, in *Bol. Com. Map. geol. Españ.* t. vi. pp. 301-309.

The rocks are U. and M. Cretaceous, unconformable; the former have been described as Lias. The ore, occurring mainly at Mont Triano,

is of 3 kinds—"Campanil" and "Vena dulce," red hæmatites; "Rubio," brown hæmatites. Analyses given. W. T.

Baldacci, L. Mazzetti, and R. Travaglia. Relazione sull' eruzione dell' Etna. [Eruption of Etna.] *Boll. R. Com. geol. Ital.* vol. x. pp. 195-201, map.

Describe the eruption which began May 26 from a line of craters near Monte Nero about 2000 m. high. The lava stopped short of the R. Alcantura, and had ceased to flow by June 6. E. B. T.

Baretti, Prof. M. Studi geologici sulle Alpe Graje settentrionali, versante italiano. [Italian Side of the N. Graian Alps.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 137, 138; *Mem.* vol. iii. pp. 407-508, 8 pls. (maps, sections, views).

The metamorphic rocks under the Carboniferous anthracite of the Thuille valley are not Trias, faulted down or inverted, but part of the Pietre-Verdi (L. Palæozoic) series. Analyses of serpentine (by Cossa, 1878) and anthracite are given. Chap. vi. deals with Glacial Drift.

W. H. D.

Barrois, Dr. Charles. A Geological Sketch of the Boulonnais. *Proc. Geol. Assoc.* vol. vi. no. 1, pp. 1-37, folding table, 6 woodcuts (sections).

Gives a bibliography, from 1818. Describes the Palæozoic rocks under 12 heads; the L. Oolites, with details of sections; the M. and U. Oolites, with a detailed table of the latter, showing their French and English equivalents; the Cretaceous, under 16 heads; and the Post-Tertiary beds. Treats of the Disturbances of the beds, the foldings of which were produced by movements up to Oligocene times. W. W.

——. Excursion to Boulonnais. *Proc. Geol. Assoc.* vol. vi. no. 1, pp. 39-46. See the next.

——. Excursion de la Geologists' Association de Londres, dans le Boulonnais. *Ann. Soc. Géol. Nord*, t. vi. pp. 113-128.

Notices the sections of the Wimereux cliffs, Echinghen, Hydrequent, Blecquenecques, Blanc Nez cliffs, etc.

——. Note sur le Terrain Dévonien de la province de Léon (Espagne). *Ann. Soc. Géol. Nord*, t. vi. pp. 213, 214 [abstract of paper noticed in the GEOLOGICAL RECORD for 1878, p. 46]; and (in Spanish) in *Bol. Com. Map. geol. Españ.* t. vi. pp. 91-95.

——. Le marbre griotte des Pyrénées. *Ann. Soc. Géol. Nord*, t. vi. pp. 270-300.

Gives an account of the literature of the subject. Describes the fauna, with the new sp. *Phillipsia Castroi* and *Goniatis Malladae*. The 18 species determined show that this limestone is not Devonian,

but lowest Carboniferous. Notices the extension of the fauna into neighbouring regions. The limestone rests transgressively on the Devonians. W. W.

Barrois, Dr. Charles. Sur l'étendu du système tertiaire inférieur dans les Ardennes et sur les argiles à silex. [Extent of L. Tertiaries in the Ardennes. Clay-with-flints.] *Ann. Soc. Géol. Nord*, t. vi. pp. 340-376, 10 woodcuts (section).

Describes the Landenian of Laon, of the Aisne, and of the Ardennes, with details of sections near Richaumont, Neuville-Housset, Lemé, Fraillicourt, Rozay, Grands-Cailloux, and Marlemont. Three sections of surface-clay, &c. are given, and an analysis of opinions as to the origin of such deposits: the clay-with-flints of La Thiérache seems to have resulted from the gentle action of pluvial water; it is below the Landenian. In the Ardennes blocks of Landenian stone occur over various beds, and show a former extension of the Landenian. W. W.

——. Mémoire sur le Terrain crétacé du Bassin d'Oviédo (Espagne). [Cretaceous Basin of Oviedo, Spain.] *Ann. Sci. Géol.* t. x. pp. 40. Résumé in *Ann. Soc. Géol. Nord*, t. vi. pp. 379-381.

The outliers of Llanes, Cabo Prieto, and Luanco contain two divisions of the Cretaceous, the Urganian above and *Cerithium* limestone below. The central basin exhibits the following beds:—Posada conglomerate at base; above are marly sands with *Orbitolina concava*, Cenomanian; next, tufaceous beds with *Periaster Verneuli*, Turonian; above is limestone with *Hippurites cornu-vaccinum*; this is followed by rose-coloured marls occupying the centre of the basin in horizontal beds, without fossils, 40 metres thick, perhaps Senonian. The Cretaceous beds are succeeded by Eocene: the Miocene is absent: this synclinal basin therefore was formed at the end of the Eocene period, but before the Miocene.

E. B. T.

——. Exposé de mes recherches sur le terrain crétacé des Ardennes et des régions voisines. [Summary of Researches in the Ardennes Cretaceous.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 19-27. Résumé of work noticed in the GEOLOGICAL RECORD for 1878, p. 46.

Bassani, Dr. Fr. Ueber einige fossile Fische von Comen. [Fossil Fish from Comen, Istria.] *Verh. k.-k. geol. Reichs.* pp. 204, 205.

7 species of a slightly older facies than that of Lesina (Neocomian). See *post*, under VERTEBRATA.

Baure, —. Note sur les Procédés de Perforation au Diamant appliqués au Sondage de Neuville (Allier). [Processes of the Diamond Boring at Neuville.] *Ann. Mines*, sér. 7, t. xvi. pp. 209-228, pls. i.-iii.

A section (of Tertiary, Trias, Coal Measures, and Porphyry), 740 metres deep, is given on p. 220.

Benecke, E. W., and E. Cohen. Geognostische Beschreibung der

Umgegend von Heidelberg. Heft i. Das Grundgebirge. [Geology of the Environs of Heidelberg.] Pp. i-x, 1-188. 8vo. *Strassburg*. Contains the description and notice of the occurrence of the igneous rocks and crystalline schists of the district.

Beneden, P. J. van. Sur un envoi d'ossements de cétacés fossiles de Croatic. [Fossil Cetacea from Croatia.] *Bull. Ac. R. Belg.* pp. 183, 184.

Note referring to bones found in the marls at Prodused, near Agram.

Benoist, A. E. [Report of Geological Observations in the Cubzac Excursion, Gironde.] *Act. Soc. Linn. Bordeaux*, vol. xxxiii. (sér. 4, t. iii.) pp. xxx-xxxii.

The Cubzac quarries are in the Fronsadais Molasse, overlain by sands with *Ostrea longirostris*.

—. [Report of the Geology of the Branne Excursion.] *Act. Soc. Linn. Bordeaux*, vol. xxxiii. (sér. 4, t. iii.) pp. liii-lv.

Section resembling the foregoing.

Benoist, A. E., and A. Degrange-Touzin. Note sur les résultats géologiques de l'excursion de Bourg. [Geology of Bourg.] *Act. Soc. Linn. Bordeaux*, vol. xxxiii. (sér. 4, t. iii.) pp. xcii-xcv.

Note sections in Miocene beds, and the variations of the subdivisions.

Berendt, G. Gletschertheorie oder Drifttheorie in Norddeutschland? [Glacier or Drift Theory in N. Germany?] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 1-20, pls. 1-3 and woodcut.

—. Bildung des norddeutschen Diluvium. [Formation of the N. German Drift.] *N. Jahrb.* pp. 556, 557.

Calls attention to the above.

—. Riesenkessel auf dem Rüdersdorfer Muschelkalk bei Berlin. [Giants' Kettles in the Muschelkalk of Rüdersdorf, near Berlin.] *N. Jahrb.* pp. 851, 852.

Records the recent discovery of a number of these cauldrons, from $\frac{1}{2}$ metre to 3 metres deep.

Besser, —. Beschreibung der Saline bei Inowrazlaw. [Inowrazlaw Salt Beds.] *Zeitschr. Berg- Hütt. Salinenw. Abhandl.* Bd. xxvii. pp. 17-27, pls. 2-5.

The proved length of the deposit is nearly 2000 yards, and is not bored through at 600 feet. See the GEOLOGICAL RECORD for 1875, p. 97.

Beyrich, Prof. [On a new Lignite-working at N. border of the Hartz.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 639, 640.

A band of Tertiaries, about 100 yards broad, contains lignite, which is now worked. The exposure was till lately unknown, being concealed by Drift. From the position of the strip it must have been in existence before the Hartz Mts. took their present shape. E. B. T.

Bidou, L. Les restes de l'âge de pierre dans la province de Chieti (Abruzzo). [Stone-Age Relics of Chieti.] *Siena*.

Biencasz, Franciszek. Fosforyty Galicyjske. [Galician Phosphorites.] *Sprawozd. Kom. Fizyogr. Krakow*, t. 13, pp. 235-242.

Gives 5 analyses, by **Bronislaw Leszko**, of phosphorite from Niezawisk, Horodenka, Przewloka, and Bukowna, quoting a sixth (by **O. Petrino**, 1869) from Chudykow, and discusses the age of the several deposits. W. H. D.

Billet, A. Compte-rendu de l'excursion géologique du 27 Avril, 1879, aux environs de Tournai. [Excursion to Tournai.] *Ann. Soc. Géol. Nord*, t. vi. pp. 427-431.

Gives a section of the Tertiary beds of Mont de la Trinité, and of a quarry in Carboniferous Limestone, capped by Cretaceous beds, with pockets of clay sand and lignite between (fig.). W. W.

Bittner, A. Trias von Recoaro. [Trias of Recoaro.] *Verh. k.-k. geol. Reichs.* pp. 71-78. Translated in *Boll. R. Com. geol. Ital.* vol. x. pp. 137-148.

At the base of the series is clay-slate, followed by Gröden Sandstone, Zechstein; Werfen beds, Muschelkalk, Keuper, Wengen beds (represented by tuffs and massive eruptive rocks); St. Cassian dolomite; *Terebratula Rotzoana* limestone, U. Jurassic, Cretaceous, and Eocene. Intrusive igneous rocks, faults, and foldings are noted. W. H. D.

——. Route Sarajevo-Mostar. [Travel-notes in Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 257-260.
Triassic limestone and Tertiaries.

——. Aus der Herzegovina. *Verh. k.-k. geol. Reichs.* pp. 287-293, 310-312, section.

Notes on Palæozoic, Triassic, Jurassic, Cretaceous, and Tertiary rocks from Blagaj to Ragusa and Livno.

——. Sulla struttura geologica della parte meridionale della Catena di Monte Baldo nel Veronese. *Boll. R. Com. geol. Italia*, vol. x. pp. 46-55; translated from *Verh. k.-k. geol. Reichs.* 1878. See GEOLOGICAL RECORD for 1878, p. 49.

Blaserna, P., Prof. O. Silvestri, and Prof. Gemmellaro. Relazione della Commissione nominata per lo studio della eruzione dell' Etna. [Report on Eruption of Etna, May 26, 1879.] *Boll. R. Com. geol. Ital.* vol. x. pp. 309-322, map.

A crack traversed the summit of Etna; and eruptions took place at either end of it: that S.S.W., at a height of 2680 m. above Biancavilla, lasted only 24 hours; that on the N.N.E. was from near the base of Monte Pizzillo at 2400 m. elevation, the lava flowed 11 kilometres, and amounted

to about 18,000,000 cubic m.; the action had ceased by June 7. An earthquake followed on June 17, doing much damage to houses in the villages S. Michele, Bongiaro, &c., extending over an ellipse 2 by 4 kilometres, the major axis of which is a radius of Etna. The vertical, not the undulatory, motion caused the damage. E. B. T.

Blavier, A. Note relative à l'influence des eaux de la Loire sur le bassin des ardoisières d'Angers. [Influence of the Loire Waters upon the Angers Slate.] *Bull. Soc. Ind. Agr. Angers.*

Blomberg, A. Beskrifning till kartbladet "Hjulsjö." [Description of the Hjulsjö Sheet.] *Sver. Geol. Undersökn. ser. A.a. no. 69.* Pp. 40. 8vo. *Stockholm.*

Notes on the occurrence of hälleflinta, mica-schist, clayslate, granular limestone, granite, pegmatite, diorite, diabase, and iron-ores; as well as on the Glacial and Post Glacial deposits. Analyses of clay by **H. Santesson**. See *post*, *MAPS* (Sweden). E. E.

—. Beskrifning till Kartbladet "Ölmestad." [Description of the Ölmestad sheet.] *Sver. Geol. Undersökn. ser. A.b. no. 5*, pp. 27, plate (map).

Gives a sketch of the constitution and distribution of the rocks (gneisses, diorite-schist, diorite) and the quaternary deposits (till "Åsar," glacial and postglacial clay and sand, alluvial sand and clay, peat). Analysis of a diorite, and some chemical facts as to Glacial clay and peat, by **H. Santesson**. See *post*, *MAPS* (Sweden). E. E.

Blomberg, A., and A. Lindström. Praktiskt geologiska undersökningar inom Herjedalen och Jemtland utförda sommaren 1876. [Practical Geological Researches in the Swedish Provinces Herjedal and Jemtland.] *Sver. Geol. Undersökn. ser. C. no. 32*, p. 43; 2 sketch maps (scale 1 : 1,000,000 and 1 : 200,000). *Stockholm.*

A description of the iron-ore and copper-ore deposits of the district, with their surrounding rocks, and of the economic value and use of the Glacial and Post Glacial beds. E. E.

Bocci, D. Del Tevere da Orto al Mare. [The Tiber from its Source to the Sea.] *Rome.*

Böckh, Johann. Auf den südlichen Theil des Comitatus Szörény bezügliche Notizen. [On Part of Szörény District.] *Földtani Közlöny (Geologische Mittheilungen)*, köt. ix. pp. 1-30, *Magyar*; pp. 65-98, German.

In this remote mountain district of Hungary the beds are gneiss, containing serpentine and granitoid rock; succeeded by secondary rocks, viz. red sandstones and clays and coarse sandstone containing *Palissya Braunii* (Lias): in two ravine sections are given with sufficient fossils to prove the presence both of L. and M. Lias; but, owing to their scarcity, a sharp line of demarcation cannot be drawn. E. B. T.

Böttger, A. Alter der Binnenconchylien der untersten Schichten des Beckens von Bordeaux. [Lowest Beds of Bordeaux District.] *Notizbl. Ver. Erdk. Darmstadt*, Folg. 3, Heft. 18, pp. 193, 194.
Compares the beds at Saucats and their fauna with those of the Mainz basin.

Bonnefoy, —. Mémoire sur la géologie et l'exploitation des gîtes de graphite de la Bohême méridionale. [Geology and Graphite-works of S. Bohemia.] *Ann. Mines*, sér. 7, t. xv. pp. 157-208, pl. iv. (geol. map, scale 1 : 216,000).

Near Kruman, S.E. of Budweis. The graphite is associated with crystalline limestone traversing the upper gneissic series (Cambrian). It has been introduced after the formation of the gneiss, taking the place of mica. W. T.

Borda, J.-F. de. Œuvres inédites. Mémoires pour servir à l'histoire des fossiles des environs de Dax, en Gascogne. *Bull. Soc. Bordeaux*.

Bosmaski, S. de. [Congeria beds, Gypsum series and Tripoli of the Gabbro District.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lii-lix. C. De Stefani replies pp. xci, xcii.
Describes these Pliocene beds (see below).

— Sui pesci fossili terziari dello marne di Cutrò (Calabria ulteriore II.) e Reggio (Calabria ulteriore I.). [Tertiary Fish of Cutro and Reggio.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxxxii, lxxxiii.

List of 5 new, and 3 doubtful, fish from U. Miocene marl.

— Cenni sopra l'ordinamento cronologico degli strati terziarii superiori nei Monte Livornesi. Nuovi pesci fossili della formazione gessosa. [Order of U. Tertiaries in the Leghorn Mts.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. cxiii-cxxi.

Refers the gypso-sulphur formation to freshwater lakes fed by thermal springs. It is underlain by the serpentinous Molasse (U. Miocene), and this by the Rosignano Limestone and Tripoli (L. Miocene); Eocene beds occur below. The gypso-sulphur series is followed by Congeria beds and Pteropod Marls. W. H. D.

Boué, Dr. A. Ueber die Oro-Potamo-Limne (Seen) und Lekave-graphie (Becken) des Tertiären der europäischen Türkei. [Turkish Tertiaries.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. 1, pp. 261-326; 2 maps.

Notes on the ranges of mountains in Turkey, their directions and the age of the beds which enter into them; and on the rivers, lakes, and basins in the same way. The second part contains hints as to gaps in the geological knowledge of Turkey, and centres from which researches could be made. E. B. T.

Bourson, Eug. Las Minas de Sommorostro. [Mines of Sommorostro.] *Bol. Com. Map. geol. Españ.* t. vi. pp. 287-299. Translated, with notes, by **R. Adan de Yarza**, from *Rev. Univ. Mines*, ser. 2, t. iv.

Large mines of good iron-ore, near Bilbao, supposed to be of Cretaceous age. Gives analyses.

Boutillier, L. Notice sur la constitution géologique de la Seine-Inférieure. [Geology of the Lower Seine.] *Bull. Soc. Sci. Nat. Rouen*, for 1878.

Bouvier, —, — Giraud, and — Pamard. Le Mont Ventoux. Pp. 51; 10 pls. 4to. *Avignon*.

Braconnier, —. Description des terrains qui constituent le sol du département de Meurthe-et-Moselle. [Geology of Meurthe-et-Moselle.] 4 pls. 12mo. *St. Nicolas*. And briefly in *Compt. Rend.* t. lxxxviii. pp. 131, 132.

Gives the results of observations upon joints. Shows that some of these pass into faults. Notes the bearing of joints upon questions of water supply. Notices the superficial deposits. J. G. G.

Branco, Dr. W. Der untere Dogger Deutsch-Lothringens. [Lower Oolite of Lorraine.] *Abh. geol. Specialkarte Elsass-Lothringen*, Bd. ii. Heft 1, pp. 160; 10 pls. Price 6s.

Comparison is made between the Lias and Inf. Oolite of Lorraine and Swabia. It is found that the distribution of the fauna is in part of the series so different that the zones of the two regions cannot be named after the same fossil. The upper zone of *H. Sowerbyi* and the lowest zone of the Dogger, the *Torulosus* zone, however, agree fairly.

The dissimilar distribution of fossils is shown by Swabian U. Lias Cephalopods occurring here in the *Torulosus* zone; and still more anomalies occur in the *Trigonia navis* and *Harpoceras Murchisonæ* zones. The Dogger begins with the *Harp. striatulum* zone, containing *Astarte Voltzii*, &c. Many beds of iron-ore are worked, mostly in the *T. navis* or *H. Murchisonæ* zones; they thicken N. Lists of fossils are given, with the descriptions of the zones adopted.

In the palæontological part the following are described as new species from the Dogger:—*Amaltheus Fredericii*, *A. subserrodens*; *Harpoceras pseudoradiosum*, *H. Lotharingicum*, *H. subundulatum*, *H. sulcomptum*, *H. Sutneri*; *Belemnites subgiganteus*; *Ostrea subirregularis*; *Pecten Lotharingicus*; *Lima Schimperii*, *L. Lessbergi*; *Inoceramus Ræhli*; *Trogonia Zitteli*, *T. præcostatus*; *Rhynchonella oligacantha*, *R. Frireni*; *Defrancia diplopore*. E. B. T.

Bréon, René. L'Eruption de l'Etna. [26 May 1879.] *Rev. Sci.* sér. 2, t. xvii. pp. 150-154.

The phenomena observed are described. There was nothing new observed regarding the lavas, scorïæ, and gases.

Briart, A. [Province of Hainaut.] *Ann. Soc. Géol. Belg.* t. vi. pp. lxxiv-lxxvii.

Notes wells and borings for the water-supply of the Commune of Morlanwelz, which show that the top part of the Bruxellian sands has been rearranged and altered, and the part next below decalcified, which last process may have begun at the end of the Eocene period. The underlying clay is also altered; and this took place before the deposition of the sands.

W. W.

Brögger, W. C., and H. H. Reusch. Norske apatitforekomster. [Apatite Deposits of Norway.] *Nyt Mag. Nat.* Bd. 25, pp. 255-300, 5 pls. (sections, views, crystals). Mostly translated from the German, see GEOLOGICAL RECORD for 1875, p. 53.

Brounitsyne, N. La Pyschma en aval du Village de Mokraia jusqu'à la Ville de Kamyschloff. [The River Pyschma from Mokraia to Kamyschloff, Perm.] *Bull. Soc. Oural. Sci. Nat.* t. v. pp. 11-24; woodcut sections.

Notes syenite, aphanite, Carboniferous rocks, porphyrite, and alluvial deposits.

Bücking, Hugo. [Rocks at Spessart, Bavaria.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 415-421.

Throws doubts on his previous opinion of a younger hornblendic gneiss being separated from an older by quartzite-schists, and thinks that it is one series repeated by folds.

E. B. T.

——. Mittheilungen über das Tertiär am Ostfusse des Vogelaberges. *Verh. k.-k. geol. Reichs.* pp. 268, 269.

Letter confirming his view that the Rockenberg and Münzenberg sandstones belong to the pre-basaltic series of lignites, &c.

——. Der Wollenberg bei Wetter und dessen Umgebung. [The Wollenberg near Wetter and its Neighbourhood.] *N. Jahrb.* pp. 371-377.

Analysis of a dissertation at Marburg by — Spranck.

Bustin, O. Observations sur le Tracé de la Carte Minière dans le Bassin de Beyne. [On the Mining Map of the Basin of Beyne.] *Ann. Soc. Géol. Belg.* t. vi. pp. 168-171, pl. iii. (plan).

Refers to the correlation of various beds of coal, and criticises the map.

Cafici, I. Stazione dell' età della pietra a S. Cono in provincia di Catania. [Stone-Age Station, Catania.] *Boll. Paleontol. Ital.*

Cairol, F. Sur la découverte d'une mâchoire de *Cainotherium* dans les gypses d'Aix. [*Cainotherium* Jaw in the Aix Gypsum.] *Compt. Rend.* t. lxxxviii. p. 987.

1879.

E

Records the occurrence of the right ramus of the lower jaw of a *Cainotherium*, allied to *C. Courtoisii*, in the gypsum deposits of the Débruge. J. G. G.

Calderon, —. Note sur les Phosphorites nouvellement découvertes dans le Midi de l'Espagne. [New Phosphorites in S. Spain.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 11, 12; and, in Spanish, in *Bol. Com. Map. geol. Españ.* t. vi. pp. 29-31.

Describes agatoid phosphorite, of hydrothermal (geyserian) origin.

Caméré, —. Note sur la Carte géologique d'une portion du département des Alpes-Maritimes. [Note on a Map of Part of the Department of the Maritime Alps.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 803-808, pl. xv.

The plate is the map referred to, having for its title 'Carte géologique des environs de Nice,' on the scale 1:80000. The rocks shown are Alluvial, Glacial, Subapennine conglomerates and marls; Eocene, Cretaceous, Jurassic, Permian; Granite, Gneiss, and Mica-schist; Andesite; and Gypseous formations and Gypsum. W. R. J.

Canavari, Mario. [The Camerinese Tertiary Basin.] *Proc. Verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lx-lxiii.

Note on the Miocene beds; list of Tithonian and L. Lias fossils.

— *Sopra un lembo di Lias superiore a monte Gemmo, presso Camerino.* [U. Lias near Camerino.] *Proc. Verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxxiii-lxxvi.

Notes on the fossils.

Cannelle, —. [Note on his Mineralogical Map of the Coal Basin du Nord.] *Ann. Soc. Géol. Nord*, t. vi. pp. 48-50.

The map (title entered in the GEOLOGICAL RECORD for 1878, p. 390) is on the scale of 1:50000, represents also a little of the Mons Basin and part of the Calais Basin, and notes 311 pits and 489 sinkings. A small map of the Calais Basin notes 43 pits and 119 sinkings. W. W.

Capellini, G. Gli strati a Congerie e le marne compatte mioceniche dei dintorni di Ancona. [Congeria Beds and Miocene Marl of Ancona.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 64, 65, and *Mem.* vol. iii. pp. 129-162, 3 pls.; *Bol. R. Com. geol. Ital.* vol. x, pp. 398-401, and *Compt. Rend. Assoc. Franç.* sess. 7, p. 606.

The beds with Congeria and dwarfed Cardia are more closely related to the Miocene than to the Pliocene. Notes on the fauna, *Cardium Scarabellii*, *C. Fedrighinii*, *C. laeviusculum*, and *C. Paolucci* being new species. W. H. D.

— *Sulla scoperta dell'ambra rossastra a Merlano presso Savigno nel Bolognese.* [Red Amber in the Bologna District.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. p. 248.

Note of occurrence.

— *Breccia ossifera della Caverna di Santa Teresa nel lato orien-*

tale del Golfo di Spezia. [Ossiferous Breccia of the Sta. Teresa Cave.] *Mem. Ac. Sci. Ist. Bologna*, ser. 3, t. x. pp. 26; 3 pls. Abstract in *Bol. R. Com. geol. Ital.* vol. x. p. 403.

Remains of *Hippopotamus amphibius*, *Cervus elaphus*, and *C. capreolus* are described, and a short account of their discovery and position is given.

Capellini, G. Balenottera fossile delle Colombaie presso Volterra. [Fossil Whale, near Volterra.] *Mem. R. Ac. Linc.* ser. 3, vol. iii. Abstract in *R. Boll. Com. geol. Ital.* vol. x. p. 492.

——. Sul calcare screziato con foraminifere dei dintorni di Porretta. [Foraminiferous Limestone, Porretta.] Pp. 8. 8vo. *Bologna*.

Caraven-Cachin, —. Faune fossile des environs de Castres. [Fossil Fauna of Castres.] *Compt. Rend.* t. lxxxviii. pp. 773, 774.

From the sandstones of Castres (contemporaneous with the lacustrine Eocenes of the Paris Basin) have been obtained the remains of many tortoises of one species, yet undetermined. With them occurred remains of *Lophiodon*, *Palæotherium*, and *Paloplotherium*, Crocodiles, and *Chara destructa*. J. G. G.

Carlberg, J. O. Historiskt sammandrag om Svenska bergverkens uppkomst och utveckling samt gruflagstiftningen. [Origin and Development of the Swedish Mines.] Pp. 663. 8vo. *Stockholm*.

The discovery of the different silver, copper, cobalt, iron, and coal mines, and the improvement of the districts in mining from the oldest times, are related. A short description is given of the geological conditions of the mines, the quantity of ore raised, &c. E. E.

Cattaneo, L. L'eruzione dell'Etna del 1879. *Illustr. Ital. di Treves*, sem. i. p. 371.

Chatel, V. Excursion scientifique, géologique, préhistorique, etc., de Campandré-Valecongrain, canton de Villers-Bocage, arrondissement de Caen. [Excursion near Caen.] Pp. 8. 12mo. *Cuen*.

Chelloneix, E. Note sur le limon des environs de Lens. [Lens Loam.] *Ann. Soc. Géol. Nord*, t. vi. pp. 381–383.

Notices sections at Lianvette, and thence to Lens, showing various loams.

——. Note sur les deux limons. *Ann. Soc. Géol. Nord*, t. vi. pp. 383–388.

Controversial with Vanden Broeck and Rutot as to the origin and age of the brickearth and "Ergeron;" holding that they are different beds, and not one bed with its upper part altered by infiltration. W. W.

Chelloneix, E., and J. Ortlieb. Traces des silex à Nummulites et de la couche à *Cyrena Morrisii*, aux environs de Béthune. [L. Eocene of Béthune.] *Ann. Soc. Géol. Nord*, t. vi. pp. 47, 48.

Note of occurrence of pieces of rock with *Nummulites levigata* and casts of *C. Morrisii* in a marsh.

Choffat, P. Sur le Callovien et l'Oxfordien dans le Jura. [Callovian and Oxfordian in the Jura.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 358-364, pl. iii.

Describes several subdivisions, noting their characteristic fossils and the conditions of deposit.

[**Church, Prof. A. H.**] The Discovery of Tin Ore in Italy and its Relation to the Bronze Manufacture of the Ancients. *Iron*, vol. xiv. pp. 166-7 and 322-324; translated in *Boll. R. Com. geol. Ital.* vol. x. pp. 382-394, 545-556.

Refers to the discovery of Cassiterite in some workings for hæmatite near Campiglia Marittima. Describes the mode of occurrence of the ore. Gives analyses of this and of other stanniferous ores found in the neighbourhood. J. G. G.

Ciofalo, S. Enumerazione dei principali fossili dei terreni stratificati nei dintorni di Termini Imerese. [List of the Principal Fossils of Termini Imerese.] *Atti XII. Cong. Sci. Ital.* and *Atti Ac. Gioen. Sci. Nat.* ser. 3, vol. xii.

Collet, L. Description des terrains miocènes marin et lacustre supérieur des environs d'Aix. [Marine and Lacustrine Miocenes of Aix.] Pp. 35. 8vo. *Montpellier*.

Cope, Prof. E. D. The Relations of the Horizons of Extinct Vertebrata of Europe and North America. *Bull. U. S. Geol. Surv. Terr.* vol. v. no. 1, pp. 33-54. See **Filhol**, p. 60.

Shows by generic lists and by a 2-page table the extent to which European and N. American formations can be correlated. Plant life in America was always one period in advance of that of Europe, or animal life one period behind. The faunal or the floral standard must be false. W. H. D.

Coquand, —. Observations sur la note de M. Péron sur les calcaires à Échinides de Rennes-les-Bains. [Peron's note on the Echinid Limestone of Rennes-les-Bains. (See the GEOLOGICAL RECORD for 1878, p. 98.)] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 326-337.

Argues against placing the Hippurite limestone in the Senonian.

— Sur les terrains tertiaires et trachytiques de la vallée de l'Arta (Turquie d'Europe). [Tertiary and Trachytic Rocks of Turkey.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 337-347.

Describes *Conger*ia-beds, trachytes, Devonian(?) quartzites with veins of ores of copper, lead, and zinc, Suessonian manganeseiferous conglomerates, Parisian tuffs, Bartonian manganeseiferous chalcedony beds and nummulitic limestone, and U. Eocene clays and arkosite millstone.

W. H. D.

Coquand, H. Note sur quelques points de la Géologie de l'arrondissement de Corte et sur les ressemblances qui s'attachent cette partie de la Corse à la bande occidentale de la Toscane. [Geology of Corte, and the Resemblance of that part of Corsica to W. Tuscany.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 27-44.

Details of the Carboniferous series (fossiliferous limestones, &c., interbedded with crystalline marbles and schists) and of the serpentine-rocks intrusive in Nummulitic limestone, and containing veins of Phillipsite, copper pyrites, and copper glance. W. H. D.

Corapi, L. Al Monte di Tiriolo. Pp. 55. 16mo. *Catanzaro*.

Cornelissen, O. A. Dislokationslinien ved Skrim i Hedenstad annex. [Line of Dislocation in Norway.] *Nyt Mag. Nat.* Bd. 25, Heft 1, pp. 1-12; geol. sketch map (scale 1 : 100,000).

The probable existence of a fault through Silurian beds is discussed, and its throw calculated to be 1260-1460 feet.

Cramer, H. Beiträge zur Geschichte des Bergbaues in der Provinz Brandenburg. [Mining History in Brandenburg.] Heft 5, Der Kreis Niederlausitz. Pp. 442. 8vo. *Halle*.

Credner, Prof. H. Ueber Gletscherschliffe auf Porphyrkuppen bei Leipzig und über geritzte einheimische Geschiebe. [Glacier Scratches on Porphyry Bosses near Leipsic, and Scratched Local Gravel.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 21-34.

Crespellani, A. Le terremare del Modenese. [The Modena Terremare.] *Atti Soc. Ital. Sci. Nat.*

Cuvier, F. Note sur la Stratigraphie de l'extrémité sud du Jura et des montagnes qui lui font suite en Savoie, aux environs du Fort-l'Écluse. [Geology of the S. Jura.] *Bull. Soc. Géol. France*, sér. 3, t. vi. p. 364.

Notes the sequence, fossils, &c. of Callovian, Oxfordian, Argovian, Corallian, Kimeridgian, Portlandian, Valanginian, Neocomian, Urgonian, and Molasse. W. H. D.

Czyszkowski, S. Exploration géologique de la région ferrifère du Canigou (Pyrénées Orientales). [Geology of the Iron District of Canigou, E. Pyrenees.] Pp. 31, folding map. 8vo. *Paris and Alais*.

— Exploration géologique de la région ferrifère de Bilbao-Somorrostro (Espagne). [Geology of the Iron District of Bilbao-Somorrostro, Spain.] Pp. 40, folding maps. 8vo. *Paris*.

— [Discovery of Blende near Canigou, E. Pyrenees.] *Bull. Soc. Ind. min.* sér. 2, t. viii. p. 369.

Dakyns, J. R. Glacial Troughs beneath the Glacier des Bossons.
Geol. Mag. dec. ii. vol. vi. pp. 239, 240.

On Glacier-formed grooves produced *across* the line of ice-flow.

Dames, Dr. W. [Drift-pebbles from Königsberg.] *Zeitsch. deutsch. geol. Ges.* Bd. xxx. pp. 685-688.

From fossils found in some of these pebbles a Senonian age is assigned to them. They point to a large extension of Cretaceous beds where is now the Baltic. E. B. T.

——. [Cambrian Drift Pebbles with so-called *Scolites* Tubes, and Alum Shale with *Peltura scarabæoides*.] *Zeitsch. deutsch. geol. Ges.* Bd. xxxi. p. 210.

——. Vorlegung eines Backzahnes des rechten Unterkiefers von *Elephas antiquus*, Falconer, aus dem Diluvium von Rixdorf. [Lower Right Molar of Elephant from Drift, Rixdorf.] *Sitz. Ges. nat. Freunde Berlin*, pp. 27, 28.

Records its discovery.

Daubrée, A. Alignements réguliers des joints ou diaclasses dans les couches tertiaires des environs de Fontainebleau; leur relation avec certains traits du relief du sol. [Regularity of Joints in the Fontainebleau Tertiaries.] *Compt. Rend.* t. lxxxix. pp. 624-630.

Gives the results of observations upon the nature of joints traversing Tertiary sandstones and limestones, noting the prevailing directions. Discusses their origin. Considers they are related to faults, and may have been produced by some form of torsion. Notices the relations between the prevailing system of joints and the alignment of the broader physical features. J. G. G.

Debray, H. Etude géologique et archéologique de quelques tourbières du littoral flamand et du département de la Somme. [Geology and Archaeology of the Peat-Bogs of the Flemish Coast and the Somme.] Pp. 60; 13 pls. 8vo. *Lille*.

Delafond, F. Note sur l'existence du terrain néocomien aux environs de Tournus (Saône-et-Loire). [Neocomian at Tournus.] *Mém. Soc. Sci. Nat. Saône-et-Loire*, t. iii. no. 1.

Delagé, —. Sur le gisement de la Tourmaline aux environs de Saint-Malo. [Tourmaline Deposits near St. Malo.] *Bull. Soc. Géol. France*, sér. 3, t. vii. p. 77.

Note of localities.

De la Harpe, P. Note sur les Nummulites des environs de Nice et de Menton. [Nummulites of the Environs of Nice and Mentone.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 817-835, pl. xvii.

Gives a list of species found and their varieties; another showing their localities; and notes on the species, with remarks on the beds. *Nummulites anomala* is a new species. W. R. J.

Delfortrie, E. Les dunes littorales du golfe de Gascogne, l'époque, les causes, et le mode de leur formation. [Date, Causes, and Mode of Formation of the Gascony Dunes.] *Act. Soc. Linn. Bordeaux*, t. xxxiii. (ser. 4, t. iii.) pp. 5-25.

The Dunes date from the 16th century, and are due to coast denudation of Pliocene beds. Subsidence is in progress. An appendix deals with the history of the fixation of the dunes by vegetation.

W. H. D.

Delgado, J. F. N. Relatório da commissao desempenhada em Hespanha an 1878 (por estudos dos terronos paleozoicos). [Report of the Commission for the Study of Spanish Palæozoic Formations.] Pp. 24. 4to. *Lisbon*.

De l'Isle, P. Stations paléolithiques et néolithiques de la Loire-Inférieure. [Palæolithic Stations of the Loire-Inférieure.] 8vo. *Nantes*.

Denize, V. Essai sur la constitution géologique du sol de l'arrondissement d'Yvetot. [Geology of Yvetot.] Pp. 15. 8vo. *Caen*.

Desailly, —. Note sur les résultats de quelques Sondages exécutés au sud de la concession de Liévin. [Borings on the South of the Liévin Concession.] *Ann. Soc. Géol. Nord*, t. vi. pp. 265-270, pl. vi. (geol. plan and section).

An account of two sections through Cretaceous and Devonian beds to Carboniferous, and a tabular note of 38 sections.

Descloiseaux, —. Note sur les dépôts de quartz résinite dans la vallée de Saint-Nectaire. [Resinous Quartz Deposits, Puy-de-Dôme.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 552-557.

Gives the results of microscopic examination, and conclusions as to age and formation.

Desor, Prof. E. Les anciens glaciers des Alpes Maritimes. [Old Glaciers of the Maritime Alps.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 519-525; *Compt. Rend.* t. lxxxviii. p. 760; *Mat. Hist. Homme*, sér. 2, t. x. p. 184.

Abstract of a memoir in *Bull. Soc. Nic. Sci. Hist. Nat.* 1879, describing Glacial and later deposits near Nice.

— Sur les terrains glaciaires diluviens et pliocènes des environs de Nice. [Glacial Beds of Drift and Pliocene in the Nice District.] *Arch. Sci. Phys. Nat.* August.

Dewalque, G. Sur le prolongement de la Faille Eifélienne. [Prolongation of the Eifelian Fault.] *Ann. Soc. Géol. Belg.* pp. cxxxv-cxxxvii.

It probably extends between the Basins of Liège and Herve, and into Prussia, near Aix-la-Chapelle.

— Notice explicative sur la carte géologique de la Belgique et des provinces voisins. [Explanation of the Geological Map of

Belgium and the Borders.] *Ann. Soc. Géol. Belg.* t. vi., *Bibliographie*, pp. 3-17.

Description of his map and explanation of the classification adopted, with reasons.

Dieulafait, L. Etude géologique des terrains traversés par un tunnel de 14,400 mètres, destiné à mettre en communication directe avec la mer le bassin à lignite de Fuveau. [Geology of proposed Tunnel from the Fuveau Lignite Basin to the Sea.] *Compt. Rend.* t. lxxxviii. pp. 351, 352.

Di Tucci, P. Saggio di studi geologici sui peperini del Lazio. [Latian Peperinos.] *Atti R. Acc. Linc.* ser. 3, *Trans.* vol. iii. pp. 206, 207, *Mem.* vol. iv. pp. 357-392, map.

Stratigraphical details, referring several masses of peperino to their respective epochs and craters.

Doelter, Dr. C. Le rocce eruttive della parte occidentale del Trentino. [Eruptive Rocks of Trentino.] *Boll. R. Com. geol. Ital.* vol. x. pp. 55-58.

Argues that no proof has been given of the Tonalite being Azoic, and that the theory of its being brought in the solid state in Tertiary times into contact with Triassic rocks is unlikely. The mineralization induced in Triassic marbles at contact is in favour of another date. E. B. T.

——. Ueber ein neues Harzvorkommen bei Köflach. [New Occurrence of Resin at Köflach.] *Mitth. nat. Ver. Steiermark.*

Dokoutchaew, W. Tchernozème (terre noire) de la Russie d'Europe. Pp. 66, plate. 8vo. *St. Petersburg.*

Dollfus, G., and G. Vasseur. Coupe géologique du chemin de fer de Méry-sur-Oise . . . etc. *Bull. Soc. Géol. France*, sér. 3, t. vi. no. 5, pp. 257-305. Noticed with the earlier pages in the GEOLOGICAL RECORD for 1878, p. 61.

Douvillé, H. Sur les relations des sables de l'Orléanais, des sables de la Sologne et des faluns de la Touraine. [Sands of Orleans, Sologne, and Touraine.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 557-563.

The sands and marls of Orleans and the sand and clays of Sologne are regularly stratified and mark one geological period; so there must have been an invasion of the sea before the sandy marls (faluns) of Touraine were deposited. W. R. J.

——. Note sur le Bathonien des environs de Toul et de Neufchâteau. [Bathonian of Toul.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 568-577.

Principally palæontological.

Douvillé, H. Note sur les assises supérieures du terrain tertiaire du Blaisois. [U. Tertiaries of Blaisois.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 52-59.

Details of Miocene beds.

Drasche, Dr. R. von. Geologische Skizze des Hochgebirgstheiles der Sierra Nevada in Spanien. [Geological Sketch of Sierra Nevada.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 93-122, pls. 7-11 and 5 cuts; in Spanish in *Bol. Com. Map. geol. Españ.* t. vi. pp. 353-388, geol. map (scale 1 : 400,000), 2 woodcut sections.

The chief formations laid down on the map and described are mica-schist, and talc-schist with intercalated limestones. There is no passage into the Nevada schists, though the group lies concordantly on them. Jurassic limestone and gypseous series follow, the latter without fossils. The Miocene is represented by conglomerates and Lithothamnium-beds.

E. B. T.

Dufour, Ed. Relations de l'Eocène et du Miocène à Saffré (Loire-Inférieure). [Relations of Eocene and Miocene in the Loire Inférieure.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 13-16.

The Sands of Bois-Gouet near Saffré are on the horizon of the upper sands of the Paris Basin, which are the top of the Eocene (Deshayes), or the base of the Miocene (Hébert).

W. H. D.

Dumont, A. Mémoires sur les terrains crétacés et tertiaires préparés par feu A. Dumont, pour servir de description à la carte géologique de la Belgique, édités par M. Murlon. Tome III. Terrains tertiaires, part 2. [Cretaceous and Tertiary Rocks of Belgium. Vol. 3. Tertiaries, pt. 2.] Pp. 459. 8vo. *Brussels*.

Descriptions of the Tertiaries of districts not noticed in the previous volume, published in 1878.

Eck, H. Bemerkungen zu den Mittheilungen des Herrn H. Pohlig über "Aspidura ein mesozoisches Ophiuridengenus" und über die Lagerstätte der Ophiuren in Muschelkalk. [On Pohlig's Note on *Aspidura*, &c. (See the GEOLOGICAL RECORD for 1878, p. 340).] *Zeitsch. deutsch. geol. Ges.* Bd. xxxi. pp. 35-53.

Engelhardt, H. Ein Beitrag zur Kenntniss der Flora des Thones von Preschen bei Bilin. [Flora of the Preschen Clay, Bilin.] *Verh. k.-k. geol. Reichs.* p. 296.

List of 31 species.

—. Ueber Cyprisschieferpflanzen Nordböhmens. [Plants of Cypris Slates, N. Bohemia.] *Verh. k.-k. geol. Reichs.* p. 321.

List of plants.

—. Die auf dem Hauptschachte der Société de carbonages de Bohême zwischen Königswarth und Grasseth bei Falkenau a. d. Eger durchteuften Schichten. [Colliery Section between Königswarth and Grasseth.] *Ibid.* pp. 322, 323.

Erdmann, E. Jakttagelser rörande "Contorted Drift" och bergarter med inneslutna "brottstycken." [On contorted Drift, and on Rocks with enclosed angular fragments.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 222-227.

The stratified diuvial clays at Bjerred in Scania (Sweden) sometimes are contorted, and contain isolated round and egg-shaped fragments of stratified sand. The latter originate from layers of sand which have been crumpled and twisted. Fragments of diorite-schist imbedded in gneiss may sometimes have a like origin. **E. E.**

——. Salthaltigt vatten ur Triaslagren vid brunnborrningar Helsingborg. [Salt Water in deep Borings at Helsingborg, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 272-276.

In Triassic beds (red clay and sandstone) salt water was met with at a depth of 300 feet, rising to several feet above the surface, and containing at first a considerable quantity of combustible gas. **H. Santeson** found the quantity of salt = 1.42 per cent. Analysis given. **E. E.**

——. Om porösa rullstenar bestående af genomvittrad orstenskalk. [Porose Glacial Pebbles consisting of weathered Fetid Limestone.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 331-335.

Such pebbles were found in Swedish Glacial "åsar." They are brittle and earthy. Pebble-shape well preserved. Sp. gr. 0.55-0.58.

——. Berättelse öfver en inom Norra Kalmar län år 1877 verkställd resa i ekonomiskt-geologiskt syfte. [Economic Geological Researches in the N. Part of Kalmar Government, Sweden.] *Kalmar hushålln. Hand.* Jahrg. 1878, pp. 42-66. 8vo. *Stockholm.*

Notes on the occurrence and economic value of granite, quartzite, quartzitic sandstone (analysis given), and of the quaternary deposits—clay, peat, etc. **E. E.**

Ertborn, O. Van. Note sur les formations géologiques des environs d'Anvers. [Geology of Antwerp.] *Bull. Soc. Géogr. Anvers*, t. i. pp. 7.

Falsan, A. Esquisses géologiques : Lyon et ses environs. [Geology of Lyons.] *Lyon Sci. Ind.*

Falsan, A., and E. Chantre. Monographie géologique des anciens glaciers et du terrain erratique de la partie moyenne du bassin du Rhône. Tome I. [Geology of the Extinct Glaciers and Drifts of the Middle Rhone Basin.] *Ann. Soc. Agric. Lyon*, sér. 4, t. vii., t. x., and sér. 5, t. i. [? 1874-78]. Separate reprint, pp. xxvii, 622. 8vo. *Lyons.*

A descriptive catalogue of the erratic blocks found in the district, with a historical and analytical account of them. One index gives the names of the localities in which they are found; another shows their place on the 6 sheets of map, published in 1875, scale 1:80,000. W. R. J.

Faly, J. Note sur les Couches tertiaires traversées au siège no. 2 du charbonnage de Fontaine-l'Evêque. [Tertiary Beds at Fontaine-l'Evêque Colliery.] *Ann. Soc. Géol. Belg.* t. vii. pp. 28-38, pl. i. (section).

Gives details of the sections of 5 shafts and borings up to 7·8 metres deep, and describes the Bruxellian, Morlanwelz clay, U. Landenian, and Infra Landenian. W. W.

Faure, Félix. Quelques nouveaux gisements de phosphate de chaux. [New Phosphatic Deposits.] *Corr. Sci. Paris.*

Favre, A. Sur une défense d'éléphant trouvée près de Genève. [Elephant's Tusk, Geneva.] *Compt. Rend. Assoc. Franç. sess.* 7, p. 563.

Noticed, from another source, in the GEOLOGICAL RECORD for 1878, p. 65.

Favre, E. Revue géologique Suisse pour l'année 1878. 8vo. *Geneva.* Bibliography of Swiss geology as in previous years.

Fegraeus, T. Et bidrag till kändedom om Gotlands höjning. [Rise of Land, Gothland, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 464, 465; sketch map.

Two small islands in the Baltic have respectively become three and five times larger, and have risen 1 and 1½ feet since 1816.

Fellenberg, E. von. Geologische Wanderungen im Aare- und Rhone-gebiet. [Aare and Rhone District.] *Jahrb. schweiz. Alpenclub*, Bd. xiv. pp. 242, 243; 2 plates.

An account of geological excursions.

Féminier, G. Compte-rendu de l'excursion géologique et botanique au mont Lozère. [Excursion to Mount Lozère.] *Bull. Soc. Etud. Sci. Nat. Nîmes.*

Ferrero, L.-O. Contribuzioni allo studio del materiale litologico della Provincia di Caserta. Pp. 160. 8vo. *Caserta.*

Ferretti, Antonio. La formazione pliocenica nello Scandianese (provincia di Reggio-Emilia). *Boll. R. Com. geol. Ital.* vol. x. pp. 101-108.

On variations of Pliocene in parishes San Valentino, &c. Lays stress on separation into littoral, deep sea, and freshwater or brackish pliocene.

Ferretti, Antonio. Le formazioni plioceniche a Montegibbio. *Boll. R. Com. geol. Ital.* vol. x. pp. 238-249.

Cites the fossils of the Pliocene of Montegibbio in the province of Modena, and finds the fauna like that of Casale in San Valentino. Again at Rio Videse and Montebaranzone the same fauna occurs in similar fine deposits. Though some Miocene species occur, the age is held to be Pliocene. Both these deposits lie unconformably on the Lucina limestone. The yellow sands are not always superior, but occasionally alternate with the bluish Pliocene sands. E. B. T.

—. Le prime formazioni mioceniche nel subapennino di Reggio e Modena. [Miocene of Reggio, &c.] *Boll. R. Com. geol. Ital.* vol. x. pp. 366-371.

Cement-limestones are interstratified into the "Argilla scagliosa" and gypsum; they are therefore Miocene, not Pliocene.

—. Scoperta di una Fauna e di una Flora Miocenica a Facies Tropicale in Montebabbio (Provincia di Reggio-Emilia). [Discovery of a Tropical Miocene Fauna and Flora at Montebabbio.] *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 826-840, and *Riv. Sci. Ind.*

Filhol, Prof. H. Note relative à la découverte d'un crâne d'*Ursus priscus* dans la caverne de Lherm (Ariège). *Bull. Soc. sci. phys. Nat. Toulouse.*

—. La France à l'époque tertiaire miocène. [France in Miocene Times.] *Bull. Assoc. Sci. France.*

—. Observations sur le mémoire de M. Cope intitulé: Relations des horizons renfermant des débris d'Animaux vertébrés fossiles en Europe et en Amérique. Pp. 35. 8vo. *Paris.* See Cope, p. 52.

—. Sur quelques fossiles animaux du système houiller du bassin de Liège. [Fossils of Liège Coal Measures.] *Ann. Soc. Géol. Belg.* t. vi. pp. xciv-xcix.

Notes the correlation of coal-beds at Val-Benoit, etc., and the occurrence of *Palæorthis*, *Cythere*, and *Cardinia*. In the discussion the occurrence of plants in the psammite of Condroz is alluded to by G. Hock.

W. W.

Firket, Ad. Carte géologique de la Belgique et des provinces voisines à l'échelle de 1:500,000 par G. Dewalque. [Dewalque's Geological Map of Belgium.] *Rev. Univ. Mines*, pp. 3.

A notice of the map, comparing the classification, as shown by the legend, with that of Dumont.

—. Compte Rendu de la Réunion extraordinaire tenue dans l'Eifel. [Excursion to the Eifel.] *Ann. Soc. Géol. Belg.* t. vi. pp. clxi-cxvii, woodcuts.

Describes old volcanos, crater-lakes, and Devonian beds (with list of fossils).

Folin, M. de. Faune lacustre de l'ancien lac d'Ossegor. [Lacustrine Fauna of the Ancient Lake of Ossegor.] *Bull. Soc. Borda*.

Fontannes, F. Note sur le terrain nummulitique de La Mortola, près de Menton. [Nummulitic Deposits of La Mortola.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 857-862.

A section is given, and an account of the fossils, most of which are badly preserved.

— Sur l'âge de la Molasse de Sainte-Juste (Drôme). [Age of the Molasse of Ste.-Juste.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 863, 864.

Upper Miocene or Pliocene.

— Classification du terrain tertiaire supérieur du bassin du Rhône. [U. Tertiaries, Rhone.] *Compt. Rend. Assoc. Franç.* sess. 7, p. 605.

Notice of his work on the subject. See GEOLOGICAL RECORD for 1878, p. 67.

— Les terrains néogènes du plateau de Cucuron (Vaucluse) (Cadenet; Cabrières-d'Aigues). [U. Tertiary of Vaucluse.] See GEOLOGICAL RECORD for 1878, p. 67. *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 469-512, pl. iv.

Sections and lists of fossils of Miocene and Pliocene.

Forsyth-Major, C. È glaciale l'Ossario della Val d'Arno superiore? [Is the Arno Valley Bone-bed Glacial?] *Proc. Verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxxxiii-lxxxv.

Gives evidence as to the age of the fauna, without deciding for or against the Glacial age.

Fouqué, Prof. F. Santorin et ses Eruptions. 4to. Paris. Pp. xxxii, 440, 61 plates (4 maps, 28 views, 6 sections, 4 pottery, 15 microscopic sections of rocks and pottery, 1 microscopic fossils, geol. map). Extracts, translated by D. J. Szabó, in *Ertek. Termész. Kör.* köt. ix. sz. xiii. pp. 29.

Chapter i. is a historical account of the formation of the Kaménis or central islets, commencing 197 B.C. ii. treats of the eruptions of 1866 and the state of the volcano up to 1869. iii. describes some ancient constructions explored and objects found, with some remarks on the date of the formation of the bay; iv. the present state of the Kaménis and the two submarine cones in the Bay of Santorin. v. is a mineralogical description of the materials ejected during the eruption of 1866. vi.-ix. deal with the petrology and mineralogy of the archipelago. W. R. J.

— Sur la récente éruption de l'Etna. *Compt. Rend.* t. lxxxix. pp. 33-35. Abstract in *Journ. Chem. Soc.* vol. xl. *Abstracts*, pp. 555-560, from *N. Jahrb.* 1880.

Gives details of the eruptions, and of the lava streams, &c.

Freyn, —. Ueber mährische Mineralien-Fundorte. [Moravian Mineral Localities.] *Verh. nat. Ver. Brünn*, Bd. xvi.

Fritsch, K. von. Beitrag zur Geognosie des Balkan. [Geognosy of the Balkans.] 4to. Halle. Pp. 10.

Cretaceous, Tertiary, and Löss deposits are recorded.

——. Ueber neuere Beobachtungen in den Apenninen. [Recent Researches in the Apennines.] *Zeitschr. ges. Naturwiss.* Bd. 52, pp. 887–892.

Fuchs, T. Ueber neue Vorkommnisse fossiler Säugethiere von Jeni Saghra in Rumelien und von Agnácsko in Ungarn nebst einigen allgemeinen Bemerkungen über die sogenannte "pliocäne Säugethierfauna." [Fossil Mammals found in Roumelia and Hungary, with general Remarks on the so-called Pliocene Mammals.] *Verh. k.-k. geol. Reichs.* pp. 49–59.

Makes 6 Mammalian faunæ—2 Miocene, 2 Pliocene, 2 Pleistocene.

——. Neue Säugethierreste aus den sarmatischen Cerithien-schichten von Mauer. [New Sarmatian Mammals.] *Verh. k.-k. geol. Reichs.* pp. 58, 59.

Records the occurrence of *Listriodon* and Antelope.

——. *Anthracotherium* aus dem Basaltuff des Saazer Kreises. [*Anthracotherium* from Basalt-tuff, Saaz.] *Verh. k.-k. geol. Reichs.* pp. 185, 186.

Note of occurrence.

——. Beiträge zur Kenntniss der pliocänen Säugethierfauna Ungarns. [Hungarian Pliocene Mammalian Fauna.] *Verh. k.-k. geol. Reichs.* pp. 269–271.

Mastodon arvernensis and *Elephas meridionalis* characterize distinct periods, the Congeria-beds and the Quaternary respectively.

——. Beiträge zur Flyschfrage. [The Flysch Question.] *Verh. k.-k. geol. Reichs.* pp. 271, 273.

Discusses the beds variously assigned to the Flysch.

——. Ueber die lebenden Analoga der jungtertiären Paludinen-schichten und der Melanopsismergel Südosteuropa's. [Recent Analogies of the U. Tertiary *Paludina* and *Melanopsis* beds of S.E. Europe.] *Verh. k.-k. geol. Reichs.* pp. 297–300.

The U. Miocene flora and fauna of S.E. Europe are allied less to those of N. America than to the Indo-Chinese.

——. L'âge des couches à Hipparions. [Age of the Hipparion Beds.] *Boll. R. Com. geol. Ital.* vol. x. pp. 14–23.

In answer to De Stefani, argues that Gaudry considered the Pikermi fauna Pliocene; that the Sansan beds are not precisely defined in age,

because *Ostrea crassissima* occurs in L., M., and U. Miocene; but as a similar fauna in Austria comes below the beds with *Hipparion* and *Mastodon longirostris*, the latter should be considered Pliocene, and not Miocene. The Pliocene fauna may be divided into two sets, of different ages. E. B. T.

Fugger, Eberhard. Gasausströmungen in dem Torfmoor von Leopoldskron. [Evolution of Gas from Peat of Leopoldskron.] *Verh. k.-k. geol. Reichs.* pp. 202-204.

Inflammable gas, which blew up the digger, whose pipe fired it. No sulphur is found in it.

Garland, Joseph. On the Rock-Salt and Carnallite Deposits of Stassfurt and neighbourhood, near Magdeburg. *Trans. R. Geol. Soc. Cornwall.* vol. x. pt. 1, pp. 18-32.

Description of the deposits and methods of working the mines. Statistics.

Gaudry, Prof. Albert. [Quaternary Bones, Valmondois.] *Bull. Soc. Géol. France*, sér. 3, t. vi. p. 310.

List of 5 species.

—. Géologie de l'île de Chypre. [Geology of Cyprus.] *La Nature* and *Bull. Assoc. Sci. France.* See GEOLOGICAL RECORD for 1878, p. 71.

—. De l'existence des Saigas en France à l'âge du Renne. [Saigas in France in the Reindeer Age.] *Compt. Rend.* t. lxxxviii. pp. 349, 350; and *Mat. Hist. Homme*, sér. 2, t. x. p. 81.

Describes teeth from various places; only the horn-cores previously known.

Gauthier, Ch. Lacs du Caucase riches en sulfate de soude. [Lakes of the Caucasus rich in Sulphate of Soda.] *Bull. Assoc. Sci. France.*

Geinitz, Eugene. [Discovery of Lias and Inferior Oolite near Goldberg.] *Zeitschr. deutsch. geol. Ges.* xxxi. pp. 616-618.

The Lias clay and *Septaria* here contain rolled limestone of lenticular form containing insect wings; *Clothrotermes Geinitzi*, Heer, is a new name, for one determined by Prof. Heer. E. B. T.

Giorgi, C. de. Note geologiche sulla Basilicata. [On the District between Salerno and Gulf of Taranto.] Pp. 152, map and 14 pls. 8vo. *Lecce.* Abstract in *Boll. R. Com. geol. Ital.* vol. x. pp. 616-655.

—. Un errore geografico. [A Geographical Error.] *Rass. settimanale*, vol. iv. N. 99 e 102. From Portis's 'Geological Bibliography of Italy,' 1881.

Girard, J. L'affaissement du sol des Pays-Bas. [Depression of the Netherlands.] *Bull. Soc. Geogr. Paris* (October).

Godin, —, and Prof. J. Gosselet. Sondage faite à Guise. [Boring at Guise.] *Ann. Soc. Géol. Nord*, t. vi. pp. 104–106, 211–213.

Details of the section, 294 metres deep, through Cretaceous and Jurassic to Devonian, with a classification of the beds. The second note is a description of specimens. W. W.

Godron, D. A. Les Cavernes des environs de Toul et les Mammifères qui ont disparu de la vallée de la Moselle. *Mém. Ac. Stanislas*, sér. 4, t. xi. p. 1.

Entered, from another source, in the GEOLOGICAL RECORD for 1878, p. 71.

Gonzala y Tarin, Joaquin. Reseña Fisico-Geologica de la Provincia de Badajoz. [Physical and Geological Features of the Province of Badajoz.] *Bol. Com. Map. geol. Españ.* t. vi. pp. 389–412; geol. map, scale 1 : 800,000.

Shows 9 formations, including porphyries and granites, also Silurian, Devonian, Carboniferous, Tertiary, and Quaternary, with a short account of each. J. F.

Gosselet, Prof. J. (Stations de l'âge de la pierre aux environs de Saint-Quentin.) [Stone Age Stations of St. Quentin.] *Ann. Soc. Géol. Nord*, t. vi. pp. 1, 2.

Gives the section of a sand-pit.

——. Le Calcaire de Givet; 3^e partie, 4^e partie. [Givet Limestone. Parts 3, 4.] *Ann. Soc. Géol. Nord*, t. vi. pp. 2–34; woodcuts.

Part 3 treats of the two sides of the Silurian crest of Condros and of the Great Fault, giving details of sections, with lists of fossils. Part 4 treats of the Aix-la-Chapelle basin in like manner. On the S. edge of this tract the Devonian limestone is divisible into 3—the upper part of schists with nodules of limestone, the middle of compact limestone, the lower of impure limestone. W. W.

——. De la terminaison orientale de la Grande Faille. [E. End of the Great Fault.] *Ann. Soc. Géol. Nord*, t. vi. pp. 35–46, pl. i. (map).

Gives an account of papers on the subject; describes sections and transverse faults. The Great Fault is traced to Vaux near the eastern end of the Condros crest (Silurian), the history of which is given.

W. W.

——. La roche à Fépin. Contact du terrain silurien et du terrain dévonien, sur les bords de la Meuse. [Junction of Silurian and Devonian on the Meuse.] *Ann. Soc. Géol. Nord*, t. vi. pp. 66–73.

At Fépin, on the right bank of the Meuse, a conglomerate rests unconformably on schists. At first thought to be a mass of pebbles deposited in Devonian times at the foot of a Silurian cliff; further evidence shows that there has been flexure, like some in the Alps.

W. W.

Gosselet, Prof. J. Description Géologique du canton de Maubeuge. [Geology of the Canton Maubeuge.] *Ann. Soc. Géol. Nord*, t. vi. pp. 129-211.

Describes the Devonian (various divisions), Carboniferous Limestone, Cretaceous (4 divisions), Landenian (2 divisions), and Silurian, with some lists of fossils (pp. 129-152). Each commune is separately noticed (pp. 152-211), sections of pits, wells, &c. being given. W. W.

——. [Large Flint.] *Ann. Soc. Géol. Nord*, t. vi. p. 214.
From sand at Haumont, thought to be Aachenian.

——. Compte-rendu de l'excursion à Souchez et Exposé de la géologie des environs de Lens. [Geology of Lens.] *Ann. Soc. Géol. Nord*, t. vi. pp. 255-266.

The loam is of two ages, and there are pebble-gravels. The Eocene beds and the Chalk are noticed. The effect of the Great Fault on the position of the Coal Measures is described. W. W.

——. L'Argile à silex de Vervins. [Clay with Flints of Vervins.] *Ann. Soc. Géol. Nord*, t. vi. pp. 317-339, pls. viii., ix. (sections).

This deposit, with unrolled flints, rests irregularly on the Chalk, and passes under the sand of the plateau, as proved by many sections of pits and wells given. In some districts the flints all come from the zone of *Micraster breviporus*; when this zone sinks under higher zones clay with flints ceases to form the base of the Tertiary beds: on the other hand it occurs over lower zones. It has been made in place, not by transport. The Ostricourt sands are of the same age. Discusses De Laparent's theory of the origin of the deposit through the action of acid-waters, after the deposit of the overlying beds, and concludes that the clay is really the oldest Tertiary bed, formed by the long-continued action of rain-water, and not by thermal water. Discusses the origin of pipes in chalk. W. W.

——. Nouveaux documents pour l'étude du Famennien.—Tranchées de chemin de fer entre Féron et Semeries.—Schistes de Sains. [The Famennian. Railway-cuttings between Féron and Semeries. Sains Schists.] *Ann. Soc. Géol. Nord*, t. vi. pp. 389-399.

The schists with *Rhynchonella Dumonti* are proved to overlie those with *R. Omaliusi*. Details of 6 cuttings are given, and a table of the distribution of Brachiopoda in the Famennian of Avesnes, some species being described, the following of which are new—*Spirifer strunianus* and *Rhynchonella letiensis*. W. W.

Gosselet, Prof. J., and A. Potier. [Loams on the French Geological Map.] *Ann. Soc. Géol. Nord*, t. vi. pp. 376-379.

Prof. Gosselet asks how to distinguish the different loams shown. M. Potier explains that the divisions are essentially theoretical. 1879.

Gourdon, —. Blocs erratiques de la vallée du Lys (Haute-Garonne). [Erratics in the Lys Valley.] *Compt. Rend.* t. lxxxviii. p. 1217. Brief descriptions. Notes a map on which the erratics are marked.

Grassi, M. Sull' eruzione de Etna del 1879. *Giorn. Sicilia*, 7 June.

Grewingk, C. Erläuterungen zur zweiten Ausgabe der geognostischen Karte Liv-, Ehst- und Kurlands. [Ed. 2 of the Geological Map of the Baltic Provinces.] *Arch. Nat. Liv- Ehst- Kurlands*, Bd. viii. p. 343. Abstract, under different title, in *Sitz. nat. Ges. Dorpat*, Bd. v. pp. 78-84.

Gives a history of the geological maps from Strangways' of 1822, and describes Ed. 2 of his map, giving, for each formation, a résumé of the labours of himself and others, making it a sketch of the geology of the countries contained in the map. W. R. J.

Gröger, F. Ueber das Vorkommen von Quecksilbererz bei Reichenau in Kärnten. [Mercury Ore, Reichenau, Carinthia.] *Verh. k.-k. geol. Reichs.* pp. 107-109.

The cinnabar occurs in chloritic clay slate.

Grossonore, A. de. Note sur un nouveau gisement de phosphate de chaux. [New Phosphatic Deposit.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 315-317.

Describes a bed of phosphatic nodules (remanié Callovian) in the Oxfordian of Nevers.

Grumbrecht, —. Bemerkungen über Einschnitte der Eisenbahn zwischen Goslar und Vienenburg in der oberen Kreide. [Railway Sections in U. Cretaceous of Goslar.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 453-456, fig. 1.

Gümbel, Dr. C. W. Geognostische Beschreibung des Fichtelgebirges mit dem Frankenwalde und dem westlichen Vorlande. [Geology of the Fichtel Mts.] Pp. iv, 698, 16 pls. (2 of maps, 2 of fossils, 12 of microscopic sections), woodcuts, and two maps folio in atlas. 4to. *Gotha*.

The district is described, the igneous and metamorphic rocks are explained (pp. 115-367); the rest is mostly an account of the sedimentary strata (Cambrian to Recent) and their eruptive masses. W. R. J.

—. Geognostische Mittheilungen aus den Alpen.—V. Die Pflanzenresteführenden Sandsteinschichten von Recoaro. [Plant-bearing Sandstones of Recoaro.] *Sitz. k. bay. Ak. Wiss.* pp. 33-85. Translated in *Rend. R. Ac. Sci. Monaco*; and *Boll. R. Com. geol. Ital.* vol. x. pp. 249-270.

Describes the beds and igneous rocks, and gives lists of fossil plants.

- Gümbel, Dr. C. W.** Die natürlichen Höhlen in Bayern. [Natural Caves in Bavaria.] 8vo. *Munich*.
- Guidi, L.** Sul sollevamento del litorale in Ostia nella epoca presente. [Recent Elevation of the Ostian Coast.] *Atti Ac. pont. Linc. Ann.* xxxi. sess. v.
- Gumælius, O.** Berättelse öfver arbetena i norra delen af Kalmar län sommaren 1877. [Geological Researches in the N. Part of Kalmar Government, Sweden.] *Kalmar hushålln. Hand.* Jahrg. 1878, pp. 77-80.
- A preliminary report on the extension of the granite, gneiss, &c. in a small part of the government.
- Hall, Capt Marshall.** Supplementary Notes on the Val d'Anniviers. *Min. Mag.* vol. ii. pp. 256-260.
- Hantken, Max von.** Die Mittheilungen der Herren Edm. Hébert und Munier Chalmas über die Ungarischen Alttertiären Bildungen. *Lit. Ber. Ungarn.* Bd. iii. pp. 687-719, 2 pls.; and, in Hungarian, Hébert és Munier Chalmas Közleményei a Magyarországi ó-Harmadkori Képződményekről. [Hébert and Munier-Chalmas on Hungarian Tertiaries.] *Ertek. Termész. Kör. köt.* ix. sz. xii. pp. 32, 2 pls. (*Nummulites lævigata*, 26 figures).
- Summary of the memoir noticed, with special reference to the fossils.
- Harpe, Dr. P. de la.** Les Nummulites du Comté de Nice, leurs Espèces et leur Distribution Stratigraphique, et Échelle des Nummulites. [The Nice Nummulites.] *Bull. Soc. Vaud. Sci. Nat.* vol. xvi. pp. 201-243, pl. x.
- Notes the range of the several groups of Nummulites characterizing Eocene zones in France, Hungary, and Switzerland, urging the importance of recording the exact horizons and of carefully determining the species. E. B. T.
- . Nummulites des Alpes Françaises. [French Alps Nummulites.] *Bull. Soc. Vaud. Sci. Nat.* vol. xvi. pp. 409-434.
- The description of several species (none new) is followed by stratigraphical and geographical considerations of the 4 Nummulitic zones found in France. W. H. D.
- Hauer, Fr. R. von.** Jahresbericht des Directors. [Director's Annual Address.] *Verh. k.-k. geol. Reichs.* pp. 1-14.
- Refers to the progress of geological work in the Austro-Hungarian Empire in 1878.
- . Verwerfungen an Geschieben aus der Umgegend von Schleinz und Pitten am Nordwestfuss des Rosaliengebirges. [Pebbles from the N.W. foot of the Rosalien Mnts.] *Verh. k.-k. geol. Reichs.* pp. 145-149.
- Drift pebbles.

Hauer, Fr. v. Einsendungen aus Bosnien. [Notes from Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 170, 171.

Petrological notes and list of fossil plants from Zenica &c.; rocks and Sarmatian mollusca from Tuzla; 4 analyses of lignites by C. v. Hauer.

Hébert, Prof. Edm. Remarques sur quelques Fossiles de la Craie du Nord de l'Europe à l'occasion du mémoire de M. Péron sur la Faune des calcaires à Échinides de Rennes-les-Bains. [Remarks on N. European Chalk, à propos of Péron's paper. See GEOLOGICAL RECORD for 1878, p. 98.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 317-326.

Remarks on the range of *Spondylus*, a *Terebratula*, and several Echinoderms. Gives stratigraphical and palæontological reasons against regarding the Hippurite limestone as Senonian. W. H. D.

Heer, Dr. O. Die Urwelt der Schweiz. [The Primæval World of Switzerland.] Ed. 2. Pp. xix, 713, 4 pls. map. 8vo. *Zurich*. (Partly published in 1878.) See the GEOLOGICAL RECORD for 1876, p. 73, for notice of English translation of Ed. 1.

Heim, A. Ueber die Erosion im Gebiete der Reuss. [Erosion in the Reuss District, Uri.] *Jahrb. schweiz. Alpenclub*, Bd. xiv. pp. 372-405.

Since the alteration, in 1851, of the course of the river, which has a drainage area of 825 cubic kilometres, the gravel &c. brought down diminishes in quantity at the rate of 1 cubic metre in 5500 years.

W. R. J.

Heinemann, J. Die krystall. Geschiebe Schleswig-Holsteins. [CrySTALLINE Pebbles of Schleswig-Holstein.] 8vo. *Kiel*.

Helland, A. Om Kobalt- og Nickel-ertsernes Forekomst i Norge. [Occurrence of the Cobalt- and Nickel-ores in Norway.] *Arch. Math. Naturvid.* Bd. iv. pp. 188-231.

Description of microscopical preparations of ore-bearing rocks from Kongsberg, Modum a. o. mines, as well as account of the ore-districts and their geological character. The ore seems to occur as accessory constituents (sometimes in very small grains and crystals) in hornblende-schists, mica-schists, gabbros, norites, and dioritic rocks. E. E.

—. Ueber die glacialen Bildungen der Nordeuropäischen Ebene. [Glacial Formations of N. European plain.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 63-106; and, in Norwegian, in *Arch. Math. Naturvid.* Bd. iv. pp. 280-333.

The diluvial deposits of Germany, as well as the Boulder-clay of parts of England etc., are the result of a great inland-ice that once extended from the Scandinavian peninsula and Finland. Many observations are

given as to the boundary of this ice, the transport of erratics and striated stones from Norway and Sweden, the occurrence of striated rock-surfaces, the probable thickness of the ice, the extent of glacial erosion, etc.

E. E.

Holland, A. Ueber die Vergletscherung der Färöer, sowie der Shetland- und Orkney-Inseln. [Glaciation of the Færoe as well as of the Shetland and Orkney Islands.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 716-755; 2 sketch maps.

The question is how far westward into the North Sea the Norwegian ice reached during the glacial epoch. The geological structure and the traces of a former glaciation of each of the island groups are described. Comes to the following conclusions:—1, that on the Færoe Islands was a local ice-sheet, from which glaciers radiated; 2, that the Shetland Islands were crossed by a great ice-stream coming from Norway and passing over the North Sea, and that later local Shetlandic glaciers existed; 3, that the Orkney Islands were covered by Scottish and also by local glaciers, but were not reached by the Scandinavian or any other arctic ice-sheet.

E. E.

—, Om de isfyldte Fjorde i Nordgrønland. [Ice-filled Fjords in N. Greenland.] *Tidskrift for populære Fremstillinger af Naturvidenskaberne*, Bd. 26, pp. 290-315 and 334-358.

Account of observations made during a journey in N. Greenland in 1875. A somewhat more detailed description was noticed in the GEOLOGICAL RECORD for 1875, p. 110, and a similar account in the GEOLOGICAL RECORD for 1877, p. 116.

E. E.

Helmersen, G. v. Zur Frage über die central-russische Steinkohle. [Coal of Central Russia.] *St. Petersburger Zeitung*, no. 102, pp. 7. Refers chiefly to the commercial importance of the subject.

Helmhacker, R. Ueber das Eisenhüttenwesen in Bosnia. [Iron Smelting, Bosnia.] *Berg- hütt. Jahrb.* Bd. xxvii. p. 133.

Bosnia possesses many rich deposits of magnetite and limonite; the yield of iron from the rich pure ores is only 13 per cent. The annual production is 4300 tons.

H. B.

Hennequin, —. Conférence sur la cartographie géologique belge. [Conference on the Belgian Geological Survey.] Pp. 45. 8vo. *Brussels*,

Hermite, H. Etude préliminaire du terrain silurien des environs d'Angers. [Silurian of Angers.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 531-543.

The series is—unfossiliferous slates at base, sandstone with *Bilobites*, Ironstone (40 metres), Black slates and sandstones, *Calymene-Tristanti* slates. Lists of fossils are given.

Hermite, H. Sur la présence du Silurien supérieur à La Magnaune, près d'Angers, Maine-et-Loire. [U. Silurian near Angers.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 544-546.

Section in U. Silurian limestones with slates.

—. Observations sur les îles Majorque et Minorque. [Geology of Majorca and Minorca.] *Compt. Rend.* t. lxxxviii. pp. 89-92. (Continuation, see GEOLOGICAL RECORD for 1878, p. 77.)

M. Eocene Nummulitic limestone and conglomerate are overlain by M. and U. Miocene, and then by Quaternary beds. Gives a summary of the geological history. W. T.

—. Etudes géologiques sur les îles Baléares (Majorque et Minorque). [Geology of the Balearic Isles.] Pp. 360, 4 pls. 8vo. *Paris*.

—. Geologia de las islas de Mallorca y de Menorca. *Cronica científica*, May 1879.

Heusler, —. [Contact of Basalt and Lignite.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 652-654.

Lignite coked by basalt was met with in different depths of a mine at Horhausen. There is now no lignite in the immediate neighbourhood. At the time of intrusion of the basalt dyke the Tertiary beds must have been lying here on the Devonian, and have since been removed.

Hilber, Dr. Vincent. Die Wanderblöcke der alten Koralpengletscher auf der steirischen Seite. [Erratics on Styrian side of Koralp.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 3, pp. 537-564, and sketch map (cut).

The blocks, chiefly tourmaline-gneiss, are scattered over a Tertiary district: glacial transport alone will account for their position; the relations of the valley systems and hills are described, also the minimum thickness of ice &c. An examination of the Koralp shows that the dispersed erratics come from there.

—. Zur Fossiliste des Miocänfundortes Pöls in Steiermark. [List of Miocene Fossils from Pöls, Styria.] *Verh. k.-k. geol. Reichs.* pp. 29-31.

List, with remarks on some of the species, describing a new *Pecten* without specific name.

Hock, G. Sur l'extension du terrain crétacé dans l'est de la province de Namur. [Extension of Cretaceous in E. Namur.] *Ann. Soc. Géol. Belg.* t. vi. pp. xcix-cii.

Notes marl shown in a quarry in Devonian limestone near Houssoy, with casts of fossils in flint.

—. [Quartzose Rock in Carboniferous Limestone, Longpré.] *Ann. Soc. Géol. Belg.* t. vi. pp. cii, ciii.

Höfer, H. Die hohlen Gerölle und Geschiebeneindrücke des Saltnitz-Conglomerates bei Klagenfurt. [Hollow and Impressed Pebbles in Conglomerate at Saltnitz, Klagenfurt.] *Min. petr. Mitth.* Bd. ii. pp. 325-349.

On the Saltnitz plateau is a conglomerate, about 400 metres thick, with beds of sand and sandstone; the pebbles are mostly about 10 cm. long and well rounded. Below the conglomerate are clays and lignite with *Mastodon longirostris* &c. of the Congeria stage. Hollow and impressed pebbles are frequent. The explanation of the hollowing of the pebbles is that carbonated water dissolved the calcareous portion of the dolomite pebbles, leaving a friable dolomitic sand; at other times the carbonated water takes up alkalies from the matrix, and this acting on bicarbonates of lime and magnesia throws down carbonate of lime on the exterior of the pebble, hardening it, while the interior is richer in magnesia and poorer in lime. E. B. T.

Hörnes, R. [Belluno District.] *Zeitschr. deutsch. geol. Ges.* Bd. xxx. pp. 680-683.

A note on some points of difference with Prof. Beyrich.

—. Sarmatische Ablagerungen in der Umgebung von Graz. [Sarmatian Beds near Graz.] *Mitth. nat. Ver. Steiermark* for 1878.

Hoffmann, Dr. Karl. Bericht über die im östlichen Theile des Szilagger Comitates Während des Sommers 1878 vollführten geologischen Special-Aufnahmen. [Geology of the E. part of Szilagy County.] *Földt. Közl. köt.* ix.

Hoffmann, R. Die Gänge der Bleierzgruben von Gennamari und Ingortorn auf der Insel Sardinien. [Lead-veins, Sardinia.] *Berg.-hütt. Zeit.* Bd. xxxviii.

Holmström, L. Om moräner och terrasser. Anteckningar under en resa i Norge 1878. [Moraines and Terraces in Norway.] *Öfv. K. Vet.-Akad. Förh.* No. 2, pp. 5-47; 5 plates.

Describes the moraines of several glaciers in Norway. Doubts that glaciers have great eroding power. Some observations on river-terraces and on the accumulation of gravel in the fjords are given. E. E.

Holst, N. O. Beskrifning till kartbladet Lessebo. [Description of the Lessebo Sheet.] *Sver. Geol. undersökn.* ser. Ab. no. 4, pp. 39.

Notes the occurrence and nature of the primitive and eruptive rocks, gneiss, hälleflinta, granite (four varieties), porphyry, diorite, and diabase. The porphyry always occurs in dykes. Describes Quaternary deposits, especially the "åsar." The territory is in S. Sweden. See also under MAPS (Sweden). E. E.

—. Beskrifning till kartbladet Möja. [Description of the Möja Sheet.] *Sver. Geol. undersökn.* ser. Aa. no. 72, pp. 19.

The land consists of some islands in the Baltic Sea, some miles N.E. from Stockholm. These consist of gneiss, diorite-schist, and pegmatite. The rock is only sparingly covered by gravel and some clay. Figures of broken layers of diorite-schist given. See also under **MAPS (Sweden)**.

E. E.

Holzapfel, E. Die Zechsteinformation am Ostrande des Reinisch-Westfälischen Schiefergebirges. [Zechstein of Rhenish Westphalia.] 8vo. *Marburg*.

Jaccard, Prof. A. [Rocks used for Portland Cement at St. Sulpice; and Pottery-Clays.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 486-489.

The Oxfordian and Bathonian yield hydraulic limestones and cement-beds alternating for 180 metres. The fine pottery-clay of Couvet is freshwater Aquitanian. The Albion clay is also very plastic.

W. H. D.

——. Note sur la carte géologique du Jura (partie centrale et septentrionale) exposée dans la section Suisse, au Champ de Mars. [Note on the Geological Map of the Jura.] *Compt. Rend. Assoc. Franç. sess. 7*, pp. 639-642.

Jahn, Dr. Hans. Bemerkungen über einige griechische Mineral-Quellen. [Greek Mineral Springs.] *Min. petr. Mitth.* Bd. ii. pp. 137-176.

Gives temperature and analysis of warm springs of Hypate, Thermopylæ, Ædepsos, Methana, and Cyllene. In the last some naphtha was found. The eruption of 282 B.C. at Methana is quoted from classical writers, and some account of the trachytic ejecta given; no crater was formed.

E. B. T.

Jannel, —. [Revinian Slate, Grande Commune.] *Ann. Soc. Géol. Belg.* t. vi. p. lxxvii.

Note of occurrence (5 lines).

Jeanbernat, E., and E. Timbal-Lagrange. Le Massif du Laurenti (Pyrénées françaises), ... géologie. [Geology &c. of the Laurenti massif, French Pyrenees.] Pp. 434; map and 2 pls. 8vo. *Toulouse*.

Jensen, J. A. D. Indberetning om den af ham ledede Expedition i 1878. [Account of an Expedition to Greenland in 1878.] *Meddelelser om Grønland*, Heft 1, pp. 19-76; 4 plates and 1 map. 8vo. *Copenhagen*.

Description of the physical condition of the W. coast of S. Greenland, from Godthaab-fjord to Frederikshaab, and of a walk of ten Danish miles eastward upon the inland-ice. Views of the ice-surface, which is often very uneven and broken, are figured in the plates.

E. E.

Jensen, J. A. D. Vandring på den grönländske Inlandsisi Aaret 1878. [Walk on the Greenlandic Inland Ice.] *Geografisk Tidsskrift*, Bd. 3, pp. 100-107, map and 3 plates. 4to. *Copenhagen*.

An account of a walk by one of the Danish geological expeditions (Jensen, Kornerup, and Groth) to the western part of Greenland in 1878. The starting place was near Frederikshaab, from which, after eleven days' troublesome walk, the Jensen Nunataks (mountains high above the ice) were reached, at a distance of ten Danish miles. Several views from the inland-ice are given in the plates. E. E.

Jentzsch, Alfred. [Geology of E. Prussia.] *N. Jahrb.* Heft ii. pp. 145, 146.

On recent discoveries in the diluvial beds of Prussia.

Jentzsch, Dr. G. Die Zusammensetzung des altpreussischen Bodens. [Composition of the Soils of Old Prussia.] 4to. *Königsberg*.

Jervis, Guglielmo. Dei Combustibili Minerali d'Italia e della loro Importanza Economica. [Combustible Minerals of Italy and their Economic Importance.] 8vo. *Turin*. Pp. 89.

Gives a general description of fossil fuels, and describes the distribution of each in detail, following a topographical arrangement and recognizing for the first time the separate basins in which the Italian coals and lignites are disposed. Anthracitic coal, probably of the age of our Millstone Grit, occurs in the basins of Demonte and Monte Bianco in the region of the Alps; of Callizzano (Genoa); and of Seui in Sardinia. Jurassic coal is found near Selva di Progno, Verona. Tertiary lignites occur extensively in the regions of the Alps and Apennines, and in Sardinia and Sicily. The distribution of peat is described. F. W. R.

Johnstrup, F. Om de i senere Aar foretagne danske geologiske Undersøgelser i Grønland. [Danish Geological Surveys in Greenland.] *Geografisk Tidsskrift*, Bd. 3, pp. 93-100. 4to. *Copenhagen*.

Gives an account of geological researches during late years in Greenland.

Jones, Prof. T. R. A new Lake in the Pistoiese Mountains. *Geol. Mag.* dec. ii. vol. vi. p. 479.

Between Florence and Modena, a brook was dammed up by the debris collected in a rapid thaw.

Josse, H. L'Etage Sénonien de la Craie. [The Senonian Stage.] *Bull. Soc. Linn. Nord*.

Karlsson, V. Beskrifning till kartbladet Linderöd. [Description of the Linderöd Sheet.] *Sver. Geol. undersökn.* ser. Aa. no. 68, pp. 32.

The territory described is in the middle part of Scania. The rocks are gneiss, diorite, diabase, and basalt. The microscopical constitution of the latter two is noted. Remarkable among the Quaternary deposits are glacial clay and sand with *Cyclas* and *Pisidium* and fragments of arctic plants, such as *Salix polaris*, *Dryas octopetala*, and *Betula nana*. Analysis of boulder-clay given. E. E.

Karrer, —. Ueber den Boden der böhmischen Bäder. [Geology of the Bohemian Baths.] *Schrift. Ver. nat. Kenntn. Wien*, Bd. xix. p. 39.

Kayser, Prof. E. [*Phillipsia* from *Stringocephalus* limestone.] *Zeitschr. deutsch. geol. Ges.* Bd. xxx. pp. 689–670.

Notices a *Phillipsia* from Hagen (it also occurs in the Eifel) referable to *P. Verneuxi*, Barr. It resembles some American forms referred by Hall to *Proetus*.

— Zur Frage nach dem Alter der hercynischen Fauna. [Question of the Age of the Hercynian Fauna.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 54–62.

Whether Silurian or Devonian.

— [Devonian *Bronteus* and *Crotalocephalus* of the Hartz.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 413–415.

Considers that *Bronteus thysanopeltus* and its allies characterize the Devonian, and therefore the Hercynian beds are allied to Devonian rather than to Silurian. The discovery of a *Crotalocephalus* in the Hartz Hercynian confirms this.

Keeping, Walter. On some Columnar Sandstone in Saxon Switzerland. *Geol. Mag.* dec. ii. vol. vi. pp. 437–441.

Describes and figures some very small but regular columns produced by the heat in the neck of an old volcano. The rock is a Cretaceous sandstone. **Prof. Bonney** adds a note on the origin of the curved arrangement of the prisms. W. K.

Kjerulf, Th. Udsigt over det sydlyse Norges Geologi. [Geology of S. Norway.] 4to. *Christiania*. Pp. viii, 262. Many woodcuts. Fol. Atlas of 39 plates and a geol. map, scale 1 : 1,000,000.

Gives the results of the first 20 years of the Norwegian Geological Survey, from 1858 to 1878. Contains a store of facts concerning almost every part of geology. Amongst others, the following matters are discussed: Glacial and Postglacial fauna, terraces and coast-lines, travelling of erratics, glacial striations, foldings and other dislocations in rocks, marks of stratification, changes occasioned by eruptive rocks, extension and stratigraphical arrangement of the different rock-formations, the chief fossils, distribution and age of the various eruptive rocks, occurrence of ores and their accompanying rocks. Many sections given. In the atlas, sections, maps, and rock-specimens figured. E. E.

Klipstein, Dr. A. von. Die Tertiärablagerungen von Waldböckelheim und ihre Polyporienfauna. [Coral Fauna and Tertiary Deposits of Waldböckelheim.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 60-68, a cut.

11 corals and 6 Bryozoa are noted from the Welschberg near Waldböckelheim. *Balanophyllia Mojsisovicsi* is figured as a new sp.

Knop, Dr. A. Uebersicht über die geologischen Verhältnisse der Umgebung von Baden-Baden. [Geology of the Neighbourhood of Baden.] Pp. 38; geological sketch-map. 16mo. *Carlsruhe.*

Prepared for the use of members of the German Geological Society on the occasion of their visit.

Koch, —, and — Wiechmann. Catalog der fossilen. Einschlüsse der oberoligocänen Sternberger Gesteins in Mecklenburg. (Gastropoden, Pelecypoden, Foraminiferen.) [Catalogue of U. Oligocene Fossils of Sternberg.] Pp. 111. *Neubrandenburg.*

Könen, Dr. A. von. Ueber das Alter und die Gliederung der Tertiärbildungen zwischen Gunterhausen und Marburg. [Tertiaries between Gunterhausen and Marburg.] Pp. 16. 4to. *Marburg.* Abstract *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 651, 652.

The beds are protected by the Bunter sandstone and basalt, among which they are faulted down; the descending order is—Lignite of Frielendorf, marine U. Oligocene, marine M. Oligocene, Lignite of the Cassel district.

E. B. T.

——. Bimssteinsandlager nächst dem Dorfe Launsbach. . . . [Pumice Beds near Dorf Launsbach.] 8vo. *Marburg.*

Kornerup, A. Geologiske Iagttagelser fra Vestkysten af Grønland (62° 15'–64° 15' N. B.). [Geological Observations on the W. Coast of Greenland.] *Meddelelser om Grønland*, pp. 79–139; 16 woodcuts, 1 plate. 8vo. *Copenhagen.*

Gives a sketch of the characters of the rocks (gneisses, crystalline schists, granites, diabase). Describes the effects of the former ice-covering upon the outer land as well as the present, and the phenomena of the great inland-ice itself, under the following heads:—shore-deposits, terraces, moraines, and rock-groovings, the topographical, physical, and geological condition of the inland-ice, its rents and fissures, its moraines, and the mountains (the so-called *nunataks*) which raise its summits above the surface of the ice.

E. E.

Kraus, R. Einiges über die geologischen Verhältnisse von Gr. Siegharts und Umgebung. [Geology of the Great Sieghart, L. Austria.] 8vo. *Horn.*

Kürthy, Dr. A. Trachytgesteine aus dem siebenbürgischen Erzgebirge und dem Gebirgszuge der Hegyes-Drocsa-Pietrosza. [Trachytes of the Transylvanian Erzgebirgs.] *Földt. Közl. köt. viii.* p. 283; *Verh. k.-k. geol. Reichs.* p. 81.

List of 14 varieties of trachyte, with localities.

Kusta, J. Ueber die Schichtenreihen am südöstlichen Rande des Rakonitzer Beckens. [Sequence of Beds on the S.E. side of the Rakonitz Basin.] *Verh. k.-k. geol. Reichs.* pp. 194-200.

Coal Measure sections and lists of fossil plants.

——. Der Brandschiefer von Velhota. [Bituminous Slates of Velhota.] *Verh. k.-k. geol. Reichs.* pp. 319-321.

Records fossils found in these beds.

——. Die Farbe des Rothliegenden in den Verschiedenen Formationen bei Rakonitz und Laun. [Colour of the Rothliegende between Rakonitz and Laun.] *Verh. k.-k. geol. Reichs.* pp. 335-337.

——. Verkieseltes Holz in der Wittingauer Tertiärebene. [Petried Wood in the Tertiary Plain of Wittingau.] *Ibid.* pp. 337, 338. Note of occurrence.

——. Die Älteren Auschwemmungen von Broum. [Older Alluvia of Broum, near Purglitz.] *Ibid.* pp. 338, 339.

Credneria (L. Cretaceous) has been found in beds supposed to be Drift.

Lacvivier, — de. Note sur le terrain turonien du département de l'Ariège. [Turonian of Ariège.] *Bull. Soc. Géol. France, sér. 3,* t. vi. pp. 394-401, 2 woodcut sections.

In E. part of department, from Montségur to Bénéix. The beds have a high dip to S. and S.W. The subdivisions are described, and lists of fossils given. W. T.

Ladrière, J. Etude sur les Limons des environs de Bavay. *Ann. Soc. Géol. Nord,* t. vi. pp. 74-87.

Describes many sections at Valenciennes, Marly, Saultain, Curgies, Jenlain, and Wargnies-le-Grand. Thinks that the clay with flints began to form towards the end of the Cretaceous period by atmospheric actions. W. W.

Lanciani, R. The Eruption of Mount Etna. *Athenæum,* pp. 825, 826.

Describes the eruption of May 26-29, and the stream of lava as seen on June 7.

Lang, H. O. Erratische Gesteine aus dem Herzogthum Bremen. [Erratics of Bremen.] Pp. iv, 199. 8vo. *Göttingen.*

The erratics were mostly derived from the valley of the Wellen, which flows into the Lune, a tributary to the Weser, and occurred at about 15 metres above mean sea-level. The essay is mainly petrological. The rocks include quartzite, flint, granite, syenite, porphyrite, diorite, basalt, gneiss, mica-schist, hornblende-schist, &c. F. W. R.

Lang, H. O. Zur Kenntniss der Alaunschiefer Scholle von Bäckelaget ved Christiania. [Alum-schist of Bäckelaget, Christiania.] *Zeitschr. gesamm. Nat.* Folg. 3, Bd. iv. pp. 777-815.

For the most part a microscopical description of the alum-schist and adjacent plutonic rocks. The alum-schist is to a certain degree altered near the latter, but a passage to gneiss is not perceptible. E. E.

——. Ein Beitrag zur Kenntniss norwegischer Gabbros. [Norwegian Gabbros.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. no. 3, pp. 484-504.

Geological and microscopical description.

Langer, J. K. Beschreibung der Quecksilbergwerkes Almaden. [Description of the Almaden Cinnabar Mines.] *Berg-hütt. Jahrb.* Bd. xxvii. p. 1.

Founded on Kuss's memoir (1878), with additions from that of Don Jose Monasterio (1873). Describes the geology of the deposit, a series of beds of granular quartzite of Silurian age. The cinnabar is supposed to have been introduced somewhat later than the formation of the Kupferschiefer, but to be older than the Triassic mercury-deposits of Idria.

H. B.

Lapparent, A. de. Mémoires pour servir à l'explication de la carte géologique détaillée de la France. Le Pays de Bray. 4to. Paris. Pp. 182; 4 plates (geol. map and sections) and 20 woodcuts.

The first part is a physical description of the district, the second describes the geological formations, and the third their upheaval and present relations. Pl. 1 is a geological map, on the scale of $\frac{1}{320,000}$, in 14 colours, the oldest formation being the Kimmeridgian. W. R. J.

Lasaulx, Prof. A. von. Die Salinellen von Paternò am Etna und ihre neueste Eruption. [Mud Volcano of Paterno &c.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 457-472.

——. Beobachtungen in den Schwefeldistrikten von Sicilien. [Sulphur Districts of Sicily.] *N. Jahrb.* pp. 490-517; plate. Abstract in *Bol. R. Com. geol. Ital.* vol. x. pp. 608-615.

Describes the geological structure of S.W. Sicily, giving details of the sulphur-bearing beds and descriptions of the associated minerals. Considers that the Sicilian sulphur was formed at two periods. Deposits of limestone and sulphur were thrown down in freshwater basins from hot springs containing sulphuretted hydrogen and carbonate of lime, such as the Acque albule near Tivoli. The beds after upheaval were permeated by sulphurous exhalations, and sulphur was sublimed in their cracks and cavities. F. W. R.

Laube, Dr. G. C. Skizze der geologische Verhältnisse des Mineralwassergebietes Böhmens. [Geology of the Mineral-water Region of Bohemia.] 8vo. Prague.

Laur, F. Prolongement du bassin houiller de la Loire sous les plaines du Dauphiné. I. Sondage de la plaine du Forez. [Extension of the Loire Coal Basin under Dauphiny. I. Boring at Forey.] Pp. 47; map. 8vo. *St. Etienne*.

Lawley, Robert. Resti fossili della Selache trovati a Ricava presso Santa Luce nelle Colline Pisane. [Remains of Selachian found near Sta. Luce.] *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 105-110.
A specimen of *Selache aurata*.

——. Nuovi denti fossili di *Notidanus* reperiati ad Orciano Pisano. [New Teeth of *Notidanus*, Tuscany.] *Proc. verb. Soc. Tosc. Sci. Nat. Pisa.*, vol. i. pp. cxxi, cxxii.

Notes the discovery in the Tuscan Pliocene of teeth of 3 new *Notidani* (not described).

Lazzaro, N. Da Napoli all Etna. [From Naples to Etna.] *Illustr. Ital. Treves*, sem. 1, p. 388, sem. 2, p. 6.

Lebrun, F. Etude géologique de la ligne ferrée de Lunéville à Saint-Dié. [Geology of the Railway from Luneville to St Dié.] Pp. 44, 2 pls. 8vo. *St. Dié*.

Lecocq, G. (Matériaux pour la géologie du sous-sol de Lille.) [Subsoil of Lille.] *Ann. Soc. Géol. Nord*, t. vi. pp. 64, 65. Title from p. 485.

Gives a section of the canal de l'Arc from 4 wells.

Legay, —. Compte-rendu de l'excursion aux Cales-Sèches (Anvers). *Ann. Soc. Géol. Nord*, t. vi. pp. 437, 438, pl. 11 (section, by **Vanden Broeck**).

Section in Pliocene and Quaternary Beds at the Dry Docks of Kattendyk.

Lehmann, J. Blatt Mittweida. No. 77. *Erläut. geol. Specialkarte Sachs.* pp. 48.

The following formations occur:—Archæan (Granulite, Glimmerschiefer, Phyllite), Palæozoic (Silurian, Subcarboniferous), Rothliegende, L. Oligocene, Diluvium, and Alluvium. W. R. J.

——. Blatt Penig. No. 76. *Erläut. geol. Specialkarte Sachs.* pp. 38.

The formations are the same as in No. 95 (see below).

Lehmann, J., Th. Siegert, H. Müller, and T. Sterzel. Blatt Hohenstein. No. 95. *Erläut. geol. Specialkarte Sachs.* pp. 74, woodcuts.

The formations are the same as in No. 77 (see above), except for the Palæozoic.

Lehmann, Dr. R. Ueber ehemalige Strandlinien in austehenden Fels in Norwegen. [Ancient Shore-lines in Solid Rock in Norway.] *Progr. Realsch. I. Ordn. Halle*, 1878-79, pp. 37, 2 cuts, and *Progr. Realsch. Wassenhause Halle*.

By "ancient shore-lines" the Norwegians mean horizontal ledges cut in solid rock, in contradistinction to terraces of loose material. A list compiled from previous observers results in a total of 120 separate rock-ledges, the nature of the rock and the height above sea-level being given in each instance. Theories as to the producing agent are discussed; those referring them to land-ice or icebergs are rejected, while adhesion is given to that attributing them to the action of sea-breakers. These old shore-lines are more abundant in N. Norway; the highest noted is 178 metres above sea-level.

E. B. T.

Lenz, Dr. O. Die Juraschichten von Bukow[i]na. [Bukowina Jurassic Beds.] *Verh. k.-k. geol. Reichs.* pp. 201, 202.
Note of occurrence.

—. Reiseberichte aus Ostgalizien. I. [Travels in E. Galicia.] *Verh. k.-k. geol. Reichs.* pp. 280-282.
Notes on Tertiary beds.

Lepsius, Dr. R. Ueber Dr. Stache's Reisebericht betreffend die Umrandung des Adamello-Stockes. [On Stache's Notes on the Adamello Peak.] *Verh. k.-k. geol. Reichs.* pp. 339-343.

Lesne, —. [Elephant tusk and Chalk with *Micraster cortestudinarium* at Soletmer.] *Ann. Soc. Géol. Nord*, t. vi. p. 61.
Note of occurrence.

Leymerie, A. Description géognostique du versant méridional de la Montagne-Noire dans l'Aude. [Geology of the S. Slope of the Black Mt., Aude.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 157-196. [The last 4 pages published 1880.]

On the crystalline rocks lies the lacustrine Garumnian, followed by the Nummulitic marls and limestones and these by the lacustrine Carcasian (Ventenac Limestone at base, Carcassonne Sandstone above). Stratigraphical details of these beds are given under several local headings.

W. H. D.

Lieb, Dr. K. Th. Die fossile Fauna der Höhle Vypustek in Mähren nebst Bemerkungen betreffs einiger Knochenreste aus der Kreuzberghöhle in Krain. [Fossil Fauna from two Caves in Moravia and Croatia.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. 1, pp. 472-490.

Determines the remains from the Vypustek cavern in Moravia. Among the chief are, Cave-Wolf, Fox, Arctic Fox, Glutton, Marten, Hamster, Fowl, Mammoth, Rhinoceros, Hyæna, Steinbock, &c. The association shows that the cave continued to be filled from the Glacial

period to the Neolithic; the fauna was rather that of the forest than of the steppe. The Kreuzberg cave yielded *Glutton*, *Martes abietium*, Bear, &c. E. B. T.

Limur, Count de. Note sur les gisements de l'étain en Bretagne, au point de vue de son commerce, à la période dite du bronze. [Tin Deposits of Brittany.] *Bull. Soc. polymath. Morbihan*, 1878, pt. 2, pp. 12.

Lindström, A. Praktiskt geologiska iakttagelser under resor på Gotland, 1876-1878. [Practical Geological Observations during Travels in Gotland, Sweden.] *Sver. Geol. undersökn. ser. C. no. 34*, 43 pp., 1 map (scale 1:500,000).

Gives an account of the U. Silurian layers of limestone, marl, and sandstone of which the island is formed, and of its Quaternary deposits (clay, marl, sand, peat, &c.). The limestone is used as building-stone, for lime and for mill-stones; the sandstone for building purposes and for grindstones. Deposits of marl and large peat-mosses are accounted for, and analyses of quartz-sand and peat given. E. E.

—. Berättelse em en ekonomisk-geologisk undersökning af en del af Norra Tjusts härad af Kalmar län, verkställd under hösten 1877. [Economic Geological Researches in Part of N. Kalmar Government, Sweden.] *Kalmar hushålln. hand.* Jahrg. 1878, pp. 67-76. 8vo. *Stockholm*.

Notes on the Quaternary clay and marl deposits and on their value for brick-making and for agricultural purposes &c. The thickness and geological position of the clays &c. noted. E. E.

Linnarsson, G. Iakttagelser öfver de graptolitförande skiffrarne i Skåne. [Graptolite-bearing Schists in Scania, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 227-238, 241-257, geographical plate; ? and *Sver. Geol. undersökn. ser. C.*

According to their fossils and their stratigraphical position to each other and to other known Silurian rocks, the graptolite-schists are divided into the lower, middle, and upper groups. The lower shows great analogies to the English Skiddaw group, the upper to the Scottish Birkhill group. E. E.

—. Ceratopygekalk och undre graptolitskiffer på Falbygden i Västergötland. [Ceratopyge-Limestone and Lower Graptolite-Schist in Westgothland, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 269, 270.

Note of the localities where found.

—. Jordskalfvet i mellersta Sverige den 2 Februari 1879. [The Earthquake in the Middle Part of Sweden, Febr. 2, 1879.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 295-331, map.

Gives a description of the phenomena as observed at 90 different places, which are all noted on the map.

Lipold, M. v. Das Alter der Idrianer Quecksilbererzlagertätte. [Age of the Idrian Mercury Beds.] *Verh. k.-k. geol. Reichs.* pp. 186-189.

The ore-beds are Triassic, impregnated with mercury in Cretaceous or Tertiary times.

Locard, A. Guide du géologue à la nouvelle chapelle de Fourvières. [Geological Guide to the new Chapel of Fourvières.] *Lyon Sci. Ind.* no. 4, pp. 8.

Lossen, K. A. Der Boden der Stadt Berlin, nach seiner Zugehörigkeit zum norddeutschen Tieflande, seiner geologischen Beschaffenheit und seinen Beziehungen zum bürgerlichen Leben, unter Benützung der Vorarbeiten des Dr. A. Kunth. [Ground of Berlin.] With atlas. 8vo. *Berlin*.

Chap. I. comprises introductory remarks on the topography and geology of the N. German plain; II. Description of the geological map of the city of Berlin; III. Discussion of the water-bearing character of the ground. F. W. R.

——. [On Occurrence of *Cryphæus rotundifrons*, Emmr., in the Lower Hartz.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 215, 216.

Lotti, B. Alcune osservazioni sui dintorni di Jano presso Volterra. [The Volterra District.] *Boll. R. Com. geol. Ital.* vol. x. pp. 96-101, section.

Describes the cinnabar-bearing Carboniferous schists, Infraalias, and Serpentine, which is said to be not older than Cretaceous or Eocene.

——. Sopra un nuovo piano di calcare nummulitico. [On a new Horizon of Nummulite Limestone.] *Boll. R. Com. geol. Ital.* vol. x. pp. 583-586, section.

Gives a section in the hills N.W. of Massa, showing above the lower horizon of Nummulites a great thickness of sandstones overlain by other beds with Nummulites, giving a great range to this genus here. Above is the "Alberese." E. B. T.

Lovisato, Dr. Domenico. Cenni geognostici e geologici sulla Calabria settentrionale. [Geological Notes on N. Calabria.] *Boll. R. Com. geol. Ital.* vol. x. pp. 24-39, 108-137, 224-237, woodcut. [Continuation, see the GEOLOGICAL RECORD for 1878, p. 89.]

The rocks traversed were chiefly central gneiss with lenticular masses of granite, the latter not intrusive, but a part of the gneiss; crystalline limestone near junction with gneiss, but which further off puts on the characters of Jurassic limestone: a series of garnet schists, Kinzigite, &c., which are newer than the central gneiss, and referred to the *pietre verdi* series. All the serpentines of Calabria are pre-Palæozoic; they 1879. G

are ancient sedimentary rocks highly metamorphosed, since they pass into chloritic and mica-schists and lie conformably in places on calcareous schist. There is great resemblance between this series in Calabria and the W. Alps. E. B. T.

Lovisato, Dr. Domenico. Il monte di Tiriolo. *Il Liceo ginnasiale Galluppi Cronaca Annuale*. 4to. Catanzaro. Noted, from another source, in the GEOLOGICAL RECORD for 1878, p. 90.

——. Sopra alcuni giacimenti minerali nuovi o poco conosciuti della Calabria. [New or Little-known Mineral Deposits in Calabria.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. p. 65.

——. Sulla chinzigiti della Calabria. [Kinzigite of Calabria.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. p. 140, *Mem.* vol. iii. pp. 221–239.

Kinzigite is a rock composed of mica, garnet, and oligoclase. A list of 59 Calabrian minerals is added in the full memoir.

Luedecke, O. Ueber die jungen Eruptivgesteine Sudthuringens. [Newer Eruptive Rocks of S. Thuringia.] *Zeitschr. gesamt. Nat.* Folg. 3, Bd. iv. pp. 266–302, pl. 3.

Gives the results of an examination into the history and mineralogical constituents of the phonolite of Heldburg near Coburg, with analyses.

Lundgren, B. Bidrag till kännedom om Juraformationen på Bornholm. [Jura Formation of Bornholm, Denmark.] 4to. Lund. 27 pp. 1 plate.

Short historical review; account of the fossiliferous beds (mostly sandstones); list showing the distribution of fossils; description of 25 species. E. E.

Macar, Julien de. Etude sur les Failles et les Synonymies proposées par la Carte générale des Mines pour les Bassins houillers de Liège et de Herve. [Faults and Synonymy of the Mining Map of the Coal Basins of Liège and Herve.] *Ann. Soc. Géol. Belg.* t. vi. pp. 177–179, folding tables A–C.

Criticizes the hypothetical parts of the map. The tables contrast the author's views as to the names of the coal-beds with the names on the map, in 3 regions—north of the fault St. Gilles, between the St. Gilles and the Eifelian faults, and south of the latter. W. W.

Macpherson, J. Estudio Geologico y petrografico del Norte de la provincia de Sevilla. [Geology and Petrology of the N. Part of the Province of Seville.] *Bol. Com. map. geol. Españ.* t. vi. pp. 97–268; geol. map (1 : 500,000), 2 plates of microscopical sections of rocks.

The map shows 4 kinds of granite, 2 of porphyry, 3 of syenite, diabase, azoic rocks (2 divisions), Cambrian, Coal, Triassic, Tertiary, and Quaternary formations.

A detailed description is given of the crystalline rocks. The sedimentary and eruptive rocks are illustrated by 5 woodcut sections.

In the Cambrian only one fossil (a new species) has been found, named *Archæocyathus Marianus* by F. Roemer, a genus new to Europe, but characteristic of the Potsdam Sandstones of N. America, which correspond to the Tremadoc and Lingula Flags of Wales. Drawings are given of this fossil and its structure.

The Carboniferous formations are very limited, but very fossiliferous.
J. F.

Macpherson, J. Breve noticia acerca de la especial estructura de la peninsula iberica. [Structure of the Iberian Peninsula.] *Ann. Soc. Españ. Hist. Nat.* t. viii. pp. 5-26.

On the structure and present physical aspect of Spain caused by dislocations.

Maderspach, L. von. Zur geologischen Stellung der Schichten des Tetöcske und Nyergeshegy im Comitate Gömör. [Tetöcske and Nyerges Beds.] *Földt. Közl. köt.* viii. p. 271; *Verh. k.-k. geol. Reichs.* p. 80.

These beds, supposed to be Carboniferous, prove to be L. Triassic (Weren Beds).

—. Ein neues zinkerzlager in Gömör. (In German and Magyar.) [New Zinc Ore Deposit in Gömör]. *Földt. Közl. köt.* ix. pp. 31, 32 (Magyar), p. 159 (German).

In a side valley of the Gran, in white crystalline limestone alternating with dark shales and yellowish dolomite, the zinc ore occurs as a contact layer-dyke conformable to the bedding. It is chiefly zinc-blende; thickness about 2-4½ feet.
E. B. T.

Maggi, Prof. Leopoldo. Intorno alle Condizioni Naturali del Territorio Varesino. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 273-300.

Geology pp. 280-290, briefly referring to rocks of every age.

—. Catalogo delle Rocce della Valcunora. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 858-876.

List with localities of 464 rocks in 12 classes.

Malafosse, G. de. Sur la question de la mer glaciaire au pied des Alpes. [The Glacial Sea at the Foot of the Alps.] *Bull. Soc. Hist. Nat. Toulouse.*

Malaise, Prof. C. Description des Gîtes fossilifères dévoniens et d'affleurements du Terrain crétacé. [Fossiliferous Devonian Beds

and Cretaceous Outcrops.] (Commission de la Carte géologique de la Belgique.) 4to. *Brussels*. Pp. iv, 69; geol. map.

Notes the classification of the Devonian in the Basins of Dinant and of Namur. Gives notes of 175 fossiliferous localities, with lists of fossils, under L., M., and U. Devonian, and an alphabetical list of the localities. The Cretaceous beds are described under five localities, Louzée, Gembloux, Hingon &c., Seron, and Wavre, with notes of sections and lists of fossils. W. W.

Malherbe, R. Gîtes poudingiformes du système houiller. [Coal Measure Conglomeratic Beds.] *Ann. Soc. Géol. Belg.* t. vi. pp. lxiii, lxiv.

Notes the occurrence of a conglomeratic grit at Grand-Fontaine. Such beds are not persistent.

——. Note sur la faille eifélienne. [The Eifelian Fault.] *Ann. Soc. Géol. Belg.* t. vi. pp. cv–cvii.

A fault at the contact of Carboniferous and Eifelian beds, thought by Gosselet to be transverse to and to stop the Great Fault (near Liège).

——. Observations sur la Communication de M. Bustin relative au Bassin Houiller de Beyne. [Bustin's paper on the Coal Measures of Beyne.] *Ann. Soc. Géol. Belg.* t. vi. pp. 172–176. (See above p. 49.)

Differs from Bustin as to the correlation of the coal-beds, and defends the map.

Mantovani, P. La questione delle argille scagliose. *Boll. R. Com. geol. Ital.* vol. x. pp. 76–78.

Denies that he considered the “argille scagliose” as erupted from mud-volcanos, nor can he agree that it was formed at great depths.

Mantovani, P., and A. Gregori. La eruzione dell'Etna. *Bull. Club-Alp. Ital.* no. 37.

Manzoni, Dr. A., and G. Mazzetti. Le Spugne fossili di Montese. [Fossil Sponges.] *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 57–66, pls. viii., ix.

Records the discovery of *Craticularia* and *Chenendopora* in the Miocene Molasse of Montese (Modena).

Marinoni, Prof. Camillo. Contribuzioni alla geologica del Friuli. II. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 647–661.

Further observations on the Eocene of Friuli, mostly lists of fossils—*Ovula sella-turcica*, *Nerita Cumani*, *Trochus coronatus* (Taramelli), and *Dentalium hexagonum* being described as new. W. H. D.

Mascari, A. Le argille marnose azzurre di Grottamare ed i fossili che vi si rinvencono. [Blue Marl of Grottamare and its Fossils.] *Ascoli-Piceno*.

Matyasovsky, Jakob. Eine neuer Fundort des *Glenodictyum* in Siebenbürgen. [New Transylvanian Locality for *Glenodictyum*.] *Földt. Közl. köt. ix.* pp. 32-34 (Magyar), 160-162 (German.)

This Amorphozoan was found in the Carpathian sandstone of Feredö-György. Its age is probably Neocomian, not Eocene.

Maurice, Ch. Excursion dans les Terrains crétacés des environs de Mons. [Cretaceous Beds near Mons.] *Ann. Soc. Géol. Nord*, t. vi. pp. 438-448.

Above the Chalk of Maisières come, in conformable succession, five divisions of the Chalk, and then, in complete discordance, the Mologne conglomerate and the Ciply tufa. Lists of fossils and notes of sections are given. W. W.

Mazzetti, G. La molassa marnosa delle montagne modenesi e reggiane e lo Schlier delle colline bolognesi. [Marly Molasse of Modena and Reggio and "Schlier" of Bologna.] *Ann. Soc. Nat. Modena*, ser. 2, anno xiii. disp. 3.

Melsens, —. Note sur les mines de houille dans lesquelles on constate la présence du grisou. [Fiery Coal Mines.] *Bull. Ac. R. Belg.* t. xlvii. pp. 502-514.

Refers to the gas discharged.

Meneghini, G. Fossili oolitici di San Vigilio, Lago di Garda. [Oolitic Fossils of San Vigilio.] *Proc. verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxx, lxxi.

List, with several new species (not described), from the *Ammonites Murchisonæ* zone (Inf. Oolite).

Mercalli, Prof. G. Contribuzione alla geologia delle Isole Lipari. *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 367-380.

Describes eruptive phenomena.

—, I vulcani ed i Fenomeni vulcanici in Italia. [Volcanic Phenomena in Italy.] *Milan*.

Mercey, N. de. [Letter to Dr. Barrois.] *Ann. Soc. Géol. Nord*, t. vi. pp. 102-104.

Remarks on the Sissonne sands, on the Cretaceous outliers of Hardivilliers and of Beuval, and on the division of the Chalk into zones.

—, Sur un sondage exécuté à Saint-Blimont (Somme). [Boring at St. Blimont.] 8vo. *Amiens*.

—, Contributions à la géologie locale. *Bull. Soc. Linn. N. France*, May and Sept.

Meunier, Stanislaus. Sables supérieurs de Pierrefitte, près d'Etampes. [Upper Sands, Etampes.] *Compt. Rend.* t. lxxxix. pp. 611-613.

Meynich, L. Dagbog fra en reise i Trysil 1878. [Journal of an Excursion in Trysil, Norway.] *Nyt Mag. Nat.* Bd. 25, pp. 12-26.

Observations as to the relative position of the sparagmite and the Silurian rocks at Högberget.

Moberg, K. A. Beskrifning till kartbladet No. 1. (*Finlands Geol. Undersökning.*) [Description of Sheet No. 1. *Geol. Survey of Finland.*] 8vo. *Helsingfors.* Pp. 49.

Gives an account of the changes of existing coast-lines, of springs, stræ, giants' kettles, erratics, plant-remains, rock-caves, &c., as well as of the distribution and constitution of the rocks (several varieties of gneiss, granite, crystalline limestone, diorite, mica-schist, &c.), ores, and minerals. Describes the Quaternary deposits (till, åsar, sand, clay, peat, &c.). Analyses of crystalline limestone and postglacial clay given. E. E.

Mojsisovics, Dr. E. Ueber einige neue Funde von Fossilien den Ostkarpathen. [Fossil Discoveries in the E. Carpathians.] *Verh. k.-k. geol. Reichs.* pp. 189-191.

Notes fossils from Trias, Rhætic, and L. Oolite.

—. Reise Skizzen aus Bosnien. [Notes of Travel in Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 254-257, 282, 283.

Congeria-beds at Sarajevo; Grauwacke at Vranica; Trias at Travnik; Copper ore and Cinnabar at Kresevo; Limonite at Dusina; Lignite at Guciagora and in the Skoplje valley; Trias at Verbas; Cretaceous at Livno; Lignite at Tusnica; Melaphyre at Bugojno.

W. H. D.

Mokijewski-Subok, N. [Geological Sketch of the Coal Measures of the Bendin District, Petrovskow Government.] (In Russian.) Pp. 53. 8vo. *Warsaw.*

Monreal, N. Datos Geológicos acerca de la Provincia de Leon, recogidos durante la Campaña de 1878 á 1879. [Geological Data, Province of Leon.] *Bol. Com. map. geol. Españ.* t. vi. pp. 311-320.

Moreni, Emilio. Provincia di Badajoz. Criaderon de fosfato di cal en los terminos di Alburquerque y Valencia di Alcantara. [Mines of Phosphate of Lime at Alburquerque and Valencia de Alcantara. Province of Badajoz.] *Bol. Com. map. geol. Españ.* t. vi. pp. 413-415.

The veins of phosphate of lime, with more or less quartz, occur in granite, generally much decomposed; vary from about $\frac{1}{2}$ to more than $2\frac{1}{2}$ metres in thickness; and are vertical or highly inclined. J. F

Morière, J. Une nouvelle station du Silurien supérieur dans le Calvados. [New U. Silurian Localities in Calvados.] *Moniteur du Calvados*, 24th Sept. *Caen*.

Mortier, P. Etude géologique sur la plaine du Forez. [Geology of the Plain of Forez.] Pp. 27; map. 8vo. *St. Etienne*.

Much, M. Das vorgeschichtliche Kupferbergwerk auf dem Mitterberg bei Bischofshofen (Salzburg). [Prehistoric Copper Mine near Salzburg.] 4to. *Vienna. Mitth. nat. Freunde* Bd. 5. Pp. 26; 15 woodcuts.

Gives a description of the locality, of the workings, and of the mining tools, &c. found.

Nathorst, A. G. En egendomlig strukturvarietet af lerhaltig kalksten från Grennatrakten. [Strange Structure of a Loamy, Sedimentary Limestone or Marl.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 213-217, one plate.

A boulder, found at the shore of lake Wetteren, Sweden, and showing the structure on its surface, is figured. Notes as to the occurrence of a similar rock, together with sandstone, clay-slate, &c., given. E. E.

——. Pumpellys teori om betydelsen af bergarternas sekulära förvittring för uppkomsten af sjöar m. m. [Pumpelly's Theory of Secular Weathering and the Origin of Lakes, &c.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 276-291.

Free translation of a part of a paper by **Raphael Pumpelly**. The relation of secular rock-disintegration to loess, glacial drift, and rock-basins; accompanied by some reflections as to Sweden. The abundance of lakes and the surface-configuration in a great part of this country originated from rock-disintegration through several geological periods, and from the wasting away of the weathered products by water and ice. E. E.

——. Om de svenska urbergens sekulära förvittring. [Secular Weathering of the Swedish Primitive Rocks.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 382-397. (Also separately published *Sver. Geol. undersökn. ser. C*, no. 38.)

Gives evidences, from several parts of Sweden, that the primitive rocks were in a high degree weathered at the beginning of the Cambro-Silurian period, and that from the end of the U. Silurian to the beginning of the Triassic period the same rocks had again been considerably weathered. The constitution of the conglomerates from the above rocks is considered as proof of this. E. E.

Nathorst, A. G. Några anmärkningar med anledning af Dr. A. E. Törnebohm's uppsats om klippbassiner och åsar. [On Törnebohm's paper on Rock-basins and "Åsar."] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 397-406.

Differs from Törnebohm in thinking that many of the Swedish lake-basins are older than the Glacial period and occasioned by the deep and uneven weathering of the rock-surface. E. E.

—. Om de äldre sandstens- och skifferbildningarne vid Vettern. [The older Sandstones and Schists at Wetter Lake, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 421-436, geol. sketch-map, scale 1 : 1,000,000. (Also separately published *Sver. Geol. undersökn.* no. 39.)

Description of the extension and stratigraphical constitution of the Visingsö formation, whose thickness is estimated to be at least 850 feet, and whose age is probably either greater than or the same as the Cambrian Eophyton-sandstone. It consists of white and yellow sandstones at the bottom; upon these comes a series of sandstone-schists and red schists, and at last clay-slates with layers and nodules of limestone. Fossils not found. E. E.

Nehring, Dr. Alfred. Fossilreste kleiner Säugethiere aus dem Diluvium von Nussdorf bei Wien. [Mammals from Diluvium of Nussdorf.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 3, pp. 475-492.

Revises Dr. Peters' list of 1863 so far that for *Rhinolophus* is substituted *Spermophilus* sp., for *Arvicola glareolus* now *Arvicola arvalis* or *A. agrestes*, while *Lagomys pusillus* is added. With them are found Mammoth, Tichorhine Rhinoceros, Cave-Hyena, &c. They lie in an old morasse, immediately below the Loëss, and are therefore Post-glacial.

E. B. T.

—. Fossilreste eines Wildesels aus der Lindenthalen Hyänenhöhle bei Gera. [Wild Ass in Linden Valley Hyæna Cave.] 8vo. Berlin.

—. On the Quaternary Deposits at Westeregeln and Thiede, near Brunswick; in illustration of the Subaerial Origin of Loess. *Geol. Mag.* dec. ii. vol. vi. pp. 176-178. (See GEOLOGICAL RECORD for 1878, p. 96.)

Neumayr, Dr. M. Remarques sur la classification du Jurassique supérieur. [U. Jurassic Classification.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 104-108.

1. The fossils cited as from the *Terebratula janitor* zone were from the same block as that species; 2. Quotes Herbich's list from this zone, 1878; 3. *T. janitor* ranges from the *Aspidoceras acanthicum* zone to L. Neocomian; 4. Objects to Tombeck's conclusions as to the *Amm. tenuilobatus* zone being L. Corallian. W. H. D.

Neumayr, Dr. M. Pylonotenschichten aus den nordöstlichen Alpen. [Pylonotus beds of N.E. Alps.] *Verh. k.-k. geol. Reichs.* pp. 32, 33. List of 61 Mollusca.

——. *Mastodon arvernensis* aus den Paludinen-Schichten West Slavoniens. [Mastodon from W. Slavonian Paludina Beds.] *Verh. k.-k. geol. Reichs.* pp. 176–180.

Note of occurrences, and correlations of horizons thereby.

Niccoli, E. Cenni sulla costituzione geologica del Tavoliere di Puglia. [Geology of the Table-land of Puglia.] *Boll. R. Com. geol. Ital.* vol. x. pp. 356–365, plate.

Describes beds between Foggia and Cerignola. The surface bed which extends from the slopes of the Apennines to the Adriatic is the so-called "crostu," about 4 ft. thick; it contains few fossils, perhaps Post-Pliocene. Below come yellow, then bluish sands (Pliocene), followed near Canosa by the Bryozoa-limestone, an easily worked limestone made up of remains of Bryozoa; it is about 30 ft. thick and bears the local name of "tufo cozzigno." E. B. T.

Nicolucci, G. Strumenti in pietra delle provincie Calabresi. [Calabrian Stone implements.] Pp. 18; 4 pls. *Naples.*

Niedzwiedzki, J. Miocän am Sudwest-Rande des Galizisch-Podolischen Plateaus. [Miocene of the S.W. Flank of the Galicio-Podolian Plateau.] *Verh. k.-k. geol. Reichs.* pp. 263–268.

Remarks on the fossil facies, indicating unbroken marine conditions.

Noertling, F. Ueber des Vorkommen von Riesenkesseln im Muschelkalk von Rudersdorf. [Giant-kettles in Muschelkalk of Rudersdorf.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 339–354, pls. 7, 8.

A description of a large series of kettles, with remarks on their origin. [See Penck, p. 93.]

Nogues, A. F. Carte géologique du département des Pyrénées-Orientales. [Geological Map of E. Pyrenees.] *Compt. Rend. Assoc. France*, sess. 7, pp. 547–552.

Description of map on the scale 1:100,000. Crystalline, Carboniferous, Triassic, Jurassic, Nummulitic, Tertiary, and Alluvial formations are present. The Metalliferous deposits are noted. W. R. J.

Nordenskiöld, A. E. Et Besög på Beringsön. [A Visit to Bering Island.] *Geografisk Tidskrift*, Bd. 3, pp. 117–120.

Notes on the extinct *Rhytina Stellari* and on *Ontaria ursina*. The part of the island visited consists of volcanic rock.

Nordström, Th. Om Bölets brunstensgrufvor i Udenäs socken af Skaraborgs län. [Pyrolusite-mines near Bölet, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 217-222, 1 plate (map).

The ore occurs as veins filling up vents and fissures in granite-gneiss and gneiss. The granite-gneiss itself in some places contains small grains, cakes, and streaks of pyrolusite. Some mines are 100 to 200 feet deep. No mining now going on. E. E.

Omboni, Prof. Giovanni. Le Nostre Alpi e la Pianura del Po.—Descrizione geologica del Piemonte, della Lombardia, del Trentino, del Veneto e dell' Istria compilata come Appendice alla Geologia dell' Italia. [Geology of N. Italy.] 8vo. *Milan.* Pp. xii, 495, cuts.

Part 1 treats of the Piedmont District; part 2, of Lombardy and Italian Switzerland; part 3, of Venetia, Trieste, and Istria; part 4 is a general summary. W. R. J.

Orsi, G. Al Vettore, osservazioni e studi. Ommagio della sezione marchigiana del Club Alpino ai convenuti al xii. congresso alpino italiano in Perugia. *Ancona.*

Orth, A. Ueber Glacierscheinungen bei Berlin. [Glacial Phenomena near Berlin.] 8vo. *Munich.*

Ortlieb, J. Compte-rendu des travaux de la Société. [Work of the Society.] *Ann. Soc. Géol. Nord*, t. vi. pp. 245-255.

An account of work done, arranged under the heads Primary, Secondary, and Tertiary rocks.

— . Réponse à la note de MM. Rutot et Vanden Broeck "Quelques mots sur le quaternaire." [Answer to Rutot and Vanden Broeck on the Quaternary (see *post*, p. 100).] *Ann. Soc. Géol. Nord*, t. vi. pp. 306-311.

In defence of statements in the paper next to be noticed, with regard to certain loams being alteration products or re-arranged.

— . Note sur les affleurements tertiaires et quaternaires visibles sur le parcours de la voie ferrée en construction entre Turcoing et Menin. [Tertiary and Quaternary exposures on the Railway from Turcoing to Menin.] *Ann. Soc. Géol. Nord*, t. vi. pp. 51-60, pl. ii. (sections).

Details of sections, with remarks on alteration by infiltration.

Ossowski, Godfryd. O labratorytach na Wolyniu. [Labradorite of Volhynia.] *Sprawozd. Kom. Fizyogr. Krakow*, t. 13, pp. 224-234, pl. ii. (map).

Describes the range &c. of a belt of labradorite in metamorphic rocks. Quotes analysis by Teich, 1872.

Palacios, Pedro. Resiña Física y Geologica de la parte No. de la Provincia de Guadalajara. [Geology of N. Part of Guadalajara.] *Bol. Com. map. geol. Españ.* t. vi. pp. 321-352; geol. map, scale 1 : 400,000 ; 4 woodcuts.

Describes the physical geography, noting the geological structure. Eruptive and Crystalline rocks, Silurian, Devonian, Carboniferous, Triassic, Jurassic, Cretaceous, Tertiary, Quaternary. J. F.

Palmieri, L. Del Vesuvio dei tempi di Spartaco e di Strabone e del precipuo cambiamento avvenuto nell' anno dell' Era volgare. [Vesuvius in the times of Spartacus and Strabo, and its Principal Changes in A.D. 79.] *Num. e not. pubb. uff. Tecn. scavi.* pp. 91-94.

Pantanelli, Dr. Dante. Sugli strati miocenici del Casino (Siena) e considerazione sul miocene superiore. [Miocene of Casino.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 146-149, and *Mem.* vol. iii. pp. 309-327, map and 4 pls. of fossils.

Describes a series of brackish-water marls, overlying others with land and freshwater shells, lignite, &c., the whole being U. Miocene. The contemporaneous physical changes are indicated. Gives (in full text) lists of fossils, and descriptions of the following species:—*Helix Senensis*, *Paludina Fuchsii*, *Nematurella Silvestriana*, *Prosothema minuta*, *Melania Lawleyana*, *M. elongatissima*, *M. Stefaniana*, *M. Soldaniana*, (Stefani), and *Neritina Capellinii*. [These were described in 1876 under names slightly different, see GEOLOGICAL RECORD for 1878, p. 147.] W. H. D.

——. Nuova numera d' antimonio nella provincia di Siena. [New Antimony Mine, Siena.] *Proc. verb. Soc. Tosc. Sci. Nat.*

——. Sul travertini della provincia di Siena. [Sienese Travertine.] *Ibid.*

Parona, Dr. C. F. Il Pliocene dell' Oltrepo Pavese. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 662-773, pl. xv. bis (map).

The first half deals with subdivisional lines, correlation of horizons, &c.; the latter half gives the synonymy, with references, of the fossils (94 Gasteropods and 56 Lamellibranchs). W. H. D.

Paul, C. M. Beiträge zur Geologie des nördlichen Bosnien. [Geology of N. Bosnia.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 4, pp. 759-778, 7 cuts & 1 pl. (map).

In the description of a few sections the beds range from Neocomian to Miocene. The upper Neogene beds, *Cerithium* and *Congerina* stages, are like those of the Vienna Basin. Part of the Neocomian has the character of Flysch. Between the Neocomian and the Nummulitic is a peculiar group called Doboj Beds ; it consists of veined limestones with bands of hornstone and jasper, as well as of serpentine and gabbro rocks interbedded. E. B. T.

Paul, K. [C.] M. Das Karpathensandsteingebiet im südöstlichen Siebenbürgen. [Carpathian Sandstone of S.E. Transylvania.] *Verh. k.-k. geol. Reichs.* pp. 70, 71.

The sandstones range from Neocomian to Oligocene.

——. Aus den Umgebungen von Doboj und Maglaj. [Notes from Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 205–208.

Loess and Miocene from the Save to Han Marica; Flysch at Velika; Limestone, serpentine, and trachyte at Doboj and Maglaj; Nummulitic Limestone N. of Kostainica. W. H. D.

——. Ammonitenfunde im Karpathensandsteine. [Ammonites in the Carpathian Sandstone.] *Verh. k.-k. geol. Reichs.* pp. 261, 262. The sequence in the Sambor District is:—1. Merulite-slate with Fish; 2. Eocene Sandstone and Marl; 3. Slate and Conglomerate with *Ammonites*; 4. Jamna Sandstone; 5. Ropianka Marls. W. H. D.

——. Ueber die Lagerungs Verhältnisse von Wieliczka. [Geology of Wieliczka.] *Verh. k.-k. geol. Reichs.* pp. 323, 324.

Paul, C. M., and Dr. E. Tietze. Neue Studien in der Sandsteinzone der Karpathen. [Carpathian Sandstone.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 2, pp. 189–304, figs. 1–5.

Supplementary (see GEOLOGICAL RECORD for 1877, p. 87). Describe the beds in E. Transylvania, where the occurrence of *Hoplites neocomiensis* proves this part of the series to be Neocomian. Groups of beds have often to be traced by lithological characters; L. Eocene fossils were found, however, at Szigeth in Marmarosch valley, and the beds are paralleled with those of Spilecco, Vicenza district. Many details are given and the beds followed into Galicia, the general structure being that the beds are repeated in folds and often reversed. Nummulites have been known in the upper sandstone of Bóbrka, Galicia, the richest petroleum-district. Petroleum is therefore found in the upper (Eocene) sandstone as well as in the lower (Neocomian), and in the Menilite beds superior to both. An organic origin is adopted for petroleum.

E. B. T.

Pech, Anton. Neuere Ausrichtungen in dem Bergbaue von Herrengrund. [Herrengrund Mines.] *Földt. Közl. köt. x.* pp. 125–126, 162–164 (Magyar and German).

Notes on the rocks in which the galleries are driven, and on meeting with greywacke after cleaning out some old works.

Pélagaud, E. Les glaciers du Lyonnais. [Glaciers of the Lyonnais.] *Revue du Lyonnais*, pp. 14. 8vo.

Pelech, Dr. J. E. The Valley of Stracena and the Dobschau Ice-Cavern (Hungary). Translated from the German of Dr. Samuel Klein by W. B. Lowe. 8vo. London. Pp. 31, 6 plates, 2 cuts.

Pelz, Anton. Ueber des Rhodope-Randgebirge südlich und südöstlich von Tatar Pazardžik. [Rhodope Mts.] *Jahrb. k.-k. geol. Reichs.* xxix. pp. 69-78.

The part of the Rhodope range S.E. of Tatar Pazardžik consists of a gneiss series with granite, limestone, and serpentine. Tertiary beds bearing lignite in patches also occur and are broken through by trachyte, quartz-trachyte or rhyolite being the prevailing type; tuffs accompany the latter. E. B. T.

Penck, A. [Giant Kettles.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 627-631.

Referring to Noertling's description of Rüdersdorf giant-kettles, considers that some of them are only "pipes" (see above, p. 89).

—. Die Geschiebformation Norddeutschlands. [Gravel of N. Germany.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 117-203.

Treats of its origin and the theories bearing on it; refers to its distribution and formation, giving a tabular section of its divisions and age in the provinces. E. B. T.

—. Ueber einige Kontaktgesteine des Kristiania-Silburbeckens. [Some contact-rocks in the Silurian District at Christiania, Norway.] *Nyt Mag. Nat.* Bd. 25, pp. 62-82. *Kristiania.*

Silurian clay-slates, marls, and limestones, changed from their original condition at the contact with granite, are microscopically analyzed. They have been converted to several varieties of microcrystalline hornstones, &c. Actinolite, iron-glance, biotite, cordierite, titanite, malacolite, &c. found. Geological section given. E. E.

—. Die Gletscher Norwegens. [Glaciers of Norway.] *Mittheil. d. Ver. f. Erdkunde zu Leipzig*, Jahrg. 1879, p. 7.

Péneau, E. Étude géologique et agronomique du canton des Aix (Cher). [Geology of the Canton of Aix (Cher).] Pp. 24; pl. 8vo. *Bourges.*

Perevia, A. Die Aetna-Eruption. [Eruption of Etna.] *Verh. k.-k. geol. Reichs.* pp. 231, 232.

Petermann, Dr. A. Note sur la phosphorite de Caçerès. *Ann. Soc. Géol. Belg.* t. vi. pp. clvii-clix.

The phosphate is found in pockets in limestone, in various forms. 8 analyses are given, showing an average of 66.47 p. c. of tribasic phosphate of lime. W. W.

Peters, Prof. K. F. Ueber nützbare Mineralien der Dobrudscha.

[Economic Minerals of the Dobrudscha.] *Verh. k.-k. geol. Reichs.* pp. 160-162.

Salt-lakes and Iron-ore deposits described.

Pétréquin, —. Note sur quelques gisements houillers et métallifères du département de l'Ardèche, du Gard, de l'Isère et des Hautes-Alpes. [Coal-bearing and Metalliferous Beds of the Ardèche, Gard, Isère, and Hautes-Alpes.] *Ann. Soc. Sci. Ind. Lyon.*

Petterson, Karl. Turmalinförande plagioklassten. [Tourmaline-bearing Plagioclastic Felspar.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 336-339.

Notes the occurrence at Tromsø (N. Norway) of a massive rock consisting of felspar, probably Labradorite, with many imbedded crystals of tourmaline. It is found with gneisses and mica-schist. E. E.

——. The Slow Secular Rise and Fall of Continental Masses. *Geol. Mag.* dec. ii. vol. vi. pp. 298-304.

Account of some furrows on sand running parallel to the beach at the N. side of Tromsø, the highest about 10 mètres above the sea. They are formed by the surf. Thinks that the level of the sea, rather than that of the land, has changed during the Quaternary period. E. E.

——. Skurings fænomener i det nuværende strandbette. [Striated and Polished Rock-surfaces on the Shore Line.] *Tromsø Mus. Aarsh.* ii. pp. 65-97.

Several observations on the coast of Tromsø (N. Norway) lead to the conclusion that the polished and grooved rock-surfaces are not always of glacial origin, but may have been caused by waves and coast-ice in Postglacial times. Questions whether, during the first part of the Glacial period, the Scandinavian peninsula was higher than now, and whether, during the latter part of that period, it was subject to a continental sinking. E. E.

——. Terrassedannelser og gamle strandlinier. [Terraces and old Coast-lines. Second paper.] *Arch. Math. Nat.* Bd. iv. pp. 167-179.

Notes on the occurrence and mode of origin of the terraces and old coast-lines on the island Kvalø in Norway. E. E.

Petz, A. M. Quartär-Formation in Thracien. [Thracian Quaternary.] *Verh. k.-k. geol. Reichs.* pp. 248-252.

Pichler, Adolf. Beiträge zur Geognosie der Tiroleralpen. [Geology of the Tyrolese Alps.] *N. Jahrb.* Heft ii. pp. 140-144.
An outline of geological work during the preceding summer.

Pierredon, A. Courses géologiques dans le Bas Vivarais. [Geological Excursions in Bas Vivarais.] *Bull. Soc. Etud. Sci. Nat. Nîmes.*

Pini, Napoleone. Contribuzione alla Fauna Fossile Postpliocenica della Lombardia. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 774-779.

Various lists of terrestrial and fluviatile shells.

Plessier, L. Notice sur la pierre tourniche ou pierre qui tourne du Mont-Saint-Mard (forêt de Compiègne). [Rocking Stone, Mt. St. Mard, Compiègne.] Pp. 29; 3 pls. 8vo. *Compiègne*.

Polli, Prof. Pietro. Su di un nuovo Giacimento di Molibdenite. [New locality for Molybdenite.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 305, 306.

In the Sacio Monte valley, L. Maggiore.

Polli, Prof. Pietro, and Dr. Pantaleone Lucchetti. I Minerali di Ferro delle Valli Bergamasche. [Iron Ores of the Bergamo Valleys.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 121-155.

Mode of occurrence and analyses (some quoted from Curioni, 1864 and 1877, and Maironi, 1788 and 1815).

Polli, P., and P. Lucchetti. La Vecchia Fonte Beroa in Zandobbio. *Atti Soc. Ital. Sci. Nat.* vol. xxii. p. 182.

Ponzi, G. Della zona miasmatica lungo il mar Tirreno e specialmente delle paludi Pontine. [Miasma Belt of the Tuscan Coast, the Pontine Marshes.] *Riv. Maritt.* Jan.

——. Le acque del bacino di Roma. [Roman Water Supply.] *Riv. Agr. Roma*.

Potier, —. Compte-rendu de la course de L'Escarène et du col de Braus. [Excursion to the Col de Braus.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 808-811.

——. Compte-rendu de la course faite dans les environs de Nice. [Excursion to Nice.] *Ibid.* pp. 812, 813.

——. Note sur la Molasse de Biot. [Molasse of Biot.] *Ibid.* pp. 815-817.

——. Sur les Dolomies des Alpes-Maritimes. [Dolomites of the Alpes Maritimes.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 836-840, pl. xviii.

Four sections of these Jurassic beds are given and described (Marbrière, Combe valley, Gourdon, and Bouissieré), to help in their correlation. **M. Fontannes** in a footnote describes *Ammonites Torcapeli*, n. s., which is figured on pl. xix. J. F.

Préaubert, F. Observations sur les anciennes mines de fer et sur le terrain silurien des environs d'Angers. [Ancient Iron Mines and Silurian Rocks of Angers.] *Bull. Soc. Etud. Sci. Angers*, 1876-77, pp. 15, 2 pls.

Quatrefages, L. de. Excursion géologique à Issy et Meudon. [Excursion to Issy and Meudon.] *Bull. Soc. Etud. Sci. Paris*.

Raulin, Victor. Aperçu sur l'Orographie, la Géologie et l'Hydrographie de la France. [Sketch of the Geology etc. of France.] Pp. 149, in *Dictionnaire encyclopédique des Sciences médicales*. 8vo. Paris.

Begazzoni, Prof. Innocenzo. Le Marmotte Fossili dei dintorni di Como. [Fossil Marmots at Como.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 22-26.

Describes a cave-deposit at Baragiola.

Benevier, Prof. E. Le Gypse des environs de Menaggio (Lac de Como). [Gypsum beds near Menaggio.] *Bull. Soc. Vaud. Sci. Nat.* sér. 2, t. xvi. pp. 5-14, woodcut.

A rectification of mapping the gypsum &c. near Menaggio. Spreafico's posthumous map had made the gypsum separate the dolomite into a lower and an upper series; this is held to be fallacious, the gypsum being lenticularly intercalated in the dolomite. The succession of beds is :—crystalline schists; semicrystalline Casanna-schists, which pass into the so-called Verrucano; gypsum and "cargneule"; Rhætio.

E. B. T.

——. Partie culminante de l'ancienne moraine frontale du glacier du Rhone sur les flancs du Jura. [Ancient frontal moraine of Rhone glacier.] *Bull. Soc. Vaud. Sci. Nat.* sér. 2, t. xvi. pp. 21-26.

Traces the frontal moraine of the old Rhone glacier for 10 kilometres on the flanks of the Jura from Mauborget to St. Croix; its breadth is from 500 to 1600 yds., its highest point 1233 m. at Brélingard dessus, N.E. of Ballet.

E. B. T.

——. Notices géologiques et paléontologiques sur les Alpes Vaudaises et les régions environantes. *Bull. Soc. Vaud. Sci. Nat.* sér. 2, t. xvi. pp. 395-408.

Describes the localities in the Bas-Valais whence Carboniferous plants have been obtained; from 10 localities the total number of species is 66, some new to the district.

E. B. T.

——. [Notes on the Aix Gypsum, U. Cretaceous.] *Bull. Soc. Vaud. Sci. Nat.* sér. 2, t. xvi. pp. 492, 493.

Reusch, H. H. Einiges über die Wirkungen des Meeres auf die Westküste Norwegens. [Action of the Sea on the W. Coast of Norway.] German translation by **R. Baldauf**. *N. Jahrb.* pp. 244–255. Originally published in *Nyt Mag. Nat.*

Account of observations under the following heads:—I. Caverns; II. Giants' Kettles; III. Great operations of the sea, Terraces and shore-walls. E. E.

Reyer, Dr. E. Ueber die erzführenden Tieferuptionen von Zinnwald-Altenberg und über den Zinnbergbau in diesem Gebiete. [Ore-bearing Erupted Rocks of Zinnwald, and Tin-working there.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 1–60, pls. 1–5.

Further from the eruptive centres the porphyry masses appear as streams: the eruptive masses of Zinnwald consist in the lower and deeper parts of granite and greisen, in the upper and external parts of porphyry, which clothes the deeper rocks like a crust; there is a passage between them. At Altenberg the erupted conical mass consists of tin-bearing porphyry, which also passes into the surrounding erupted rocks. The tin-ore in both cases was an original component of an erupted rock rich in quartz. Gives an historical sketch of mining in the district.

E. B. T.

——. Tektonik der Granitergüsse von Neudeck und Karlsbad und Geschichte des Zinnbergbaues in Erzgebirge. [Relations of Granite Eruptions at Karlsbad, &c.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 3, pp. 405–462; 7 cuts.

A sketch-map shows the distribution of slate, granite (coarse and fine-grained), and porphyry in the Erzgebirge N. of Karlsbad. The relations of the coarse-grained granite to the fine-grained and porphyry is found to be that they are all modifications of one massive eruption. This sort of eruption is contrasted with the ordinary volcanic one, where the later flows are superimposed on the already cooled older currents, whilst in massive eruptions the later outflows are contained within or under the earlier. Variations in grain or composition in massive eruptions, such as the fine-grained granite here, which pass gradually into the other varieties, are called "Schlieren;" and the injections into partially cooled older outflows are called "Schlierengänge," as opposed to ordinary dykes, where the walls have hard outlines and there is no gradual passage between the infilling and the country-rock. Artificial illustrations of this process of injection and the formation of "schlieren," as imitated with plaster of Paris paste, are described. Gives an historical account of the yield of tin-works in the district.

E. B. T.

——. Notiz über die Tektonik der Vulcane von Böhmen. [Structure of Bohemian Volcanoes.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 3, pp. 463–473; 4 figs.

1879.

II

The Teplitz Schlossberg is proved not to be part of a current, but a dome or boss from the quaquaversal dip of the platy divisional planes, which must be parallel to the original cooling surface. Such bosses the author calls "Quellkuppen." An imitation of the structure of the hill was made by forcing plaster of Paris paste through a hole in a flat board. Other volcanoes of the district differ; some show both crater and tuffs. The Klein Priesen one has central tuffs with radiating currents.

E. B. T.

Reyer, Dr. E. Ueber die Eruptivgebilde und das Relief der Gegend von Christiania. [Eruptive Rocks and Physical Features of Christiania.] *Verh. k.-k. geol. Reichs.* p. 323.
Granite, Porphyry, and U. Silurian are noted.

Rey-Lescure, P. A. Notice explicative de la Carte agro-géologique et hydrologique du Tarn-et-Garonne. [Description of the Geological Map of Tarn and Garonne.] *Bull. Soc. Hist. Nat. Toulouse*, t. xiii. p. 61.

—. Phosphate de Chaux du Quercy; Dislocations et plissements dans les terrains du sud-ouest. [Quercy Phosphates; Faults and Foldings of S.W. France.] *Compt. Rend. Assoc. Franç. sess. 7*, pp. 539-543.

The valleys are mostly N.N.W. & E.N.E. at the side of the central plateau, and W.N.W. & N.N.E. on the Pyrenees side, and were caused at the close of the Cretaceous epoch and the beginning of the Tertiary.

W. R. J.

Ribeiro, C. Quelques mots sur l'âge de la pierre en Portugal. [Stone Age, Portugal.] *Compt. Rend. Assoc. Franç. sess. 7* p. 895.

The men of the polished stone age must have existed during the last movement of the land.

Richter, R. Aus dem Thüringischen Diluvium. [Drift of Thuringia.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 282-300.
Description of occurrence and of the fauna.

—. Diluvium bei Saalfeld. [Drift near Saalfeld.] *N. Jahrb.* pp. 850, 851.

Records the discovery of shells and other fossils, including pleistocene mammals and human remains.

Riedl, Emm. Die Sotzkaschichten. [The Sotzka Beds.] *Oesterr. Zeitschr. Berg-Hütt.* Bd. xxvii. pp. 70-72, 89-91, pl. vi. (fossil plants).
The Sotzka lignite beds are Eocene.

Rivière, Emile. Paléoethnologie. De l'Antiquité de l'homme dans les Alpes-Maritimes. Livraisons 1-8, pp. 1-152, pls. i.-xv. 4to. Paris, 1878, 1879.

Reviews the researches on anthropology and prehistoric archaeology in the Maritime Alps. Gives particulars as to the human remains which have come to light in the Tertiary deposits (p. 15). Treats of the Quaternary epoch (p. 25), which is divided into sections. The first is on the Caverns and osseous breccias of the neighbourhood of Nice, giving lists of the animal remains found. The second describes the Quaternary station of the Cap-Roux de Beaulieu, giving a sketch of the geology, and describing the human remains and the fossil fauna. The third describes in detail the Caverns of the Baoussé-Roussé, or Caves of Mentone, giving minute information as to the animal and human remains. The caves of the Rochers-Rouges are described, also the remains and implements found. Measurements of the bones are given with comparisons. The remains of mammalia, birds, fish, and mollusca, both recent and fossil, found in them are treated of.

J. P. D. & W. R. J.

——. Grotte de Grimaldi en Italie. Comparaison de la faune de cette grotte avec celle des cavernes des Baoussé-Roussé, dites grottes de Menton. [Grotto of Grimaldi, Italy. Comparison of the Fauna with that of the Mentone Caves.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 622-638, pls. vii, viii.

It is in the commune of Ventimiglia. The remains of many mammalia were found. The fauna is compared with that of the caves of Mentone.

W. R. J.

Robert, E. Essai sur la topographie et la géologie du canton de Sézanne. [Geology of Sézanne.] *Mém. Soc. Sci. Vûry*, p. 40.

——. Origine du limon de la Marne. [Origin of the Loam of the Marne.] *Bull. Soc. Nat. Agric. France*, t. xxxix. p. 39.

Rodwell, G. F. The recent Eruption of Vesuvius. *Academy*, p. 149. See also *La Nature*, 8 March.

Roland, G. Memoire über die geologischen Verhältnisse von Kongsberg in Norwegen. [Geological Conditions at Kongsberg, Norway.] *Oesterr. Zeitschr. Berg-Hütt.* Bd. xxvii. pp. 155, 156.

Rosemont, A. de. Sur la delta du Var et la période pluviale. [Delta of the Var and the Pluvial Period.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 799-802.

Rossi, M. S. de. Studi intorno al terremoto che devastò Pompei nell' anno 62, e ad una basso rilievo votivo pompeiano che lo rappresenta. [Earthquake of Pompei A.D. 62, shown on a Votive Tablet.] *Boll. Vulc. Ital.* ann. vi.

Roth, Dr. S. Notizen aus der Hohen Tatra. [Notes from the High Tatra.] *Földt. Közl.* köt. viii. sz. 6, p. 280; *Verh. k.-k. geol. Reichs.* pp. 80, 81.

1. Granite over Dyas; 2. Hæmatite in Granite; 3. Mica-schist of the Garnet-rock of the Felka valley.

Roth von Telegd, Louis. Geologische Skizze des Kroisbach-Ruster Bergzuges und des südlichen Theiles des Leita Gebirges. *Földt. Közl.* köt. ix. Magyar pp. 99-110, German pp. 139-150.

Outlines of the geological survey of the Kroisbach-Ruster range and neighbourhood of Eisenstadt. The fundamental rock is gneiss with granite-like intercalations classed as "granite-gneiss." The oldest sedimentary rock is the Leitha limestone; this is followed by various other members of the Neogene series.

Pannonian Series is a new name for the Pontic or Congeria-beds, Levantine or Paludina Beds, and Thracian or Belvedere Beds combined.

E. B. T. & W. H. D.

——. [Artesian Well at Püspök-Ladány Theiss Valley.] *Földt. Közl.* köt. ix.

Rouville, P. de. Notice sur le sol de Montpellier. [Soil of Montpellier.] *Rev. Sci. Nat.* t. vii. pp. 11, pl.

Rouzaud, H. Géologie des environs de Montpellier. [Geology of Montpellier.] *Union des Ecoles*, map.

Ruggiero, Michele. Della Eruzione del Vesuvio nell' anno LXXIX. [Eruption of Vesuvius in the year 79.] Pp. 32; 6 pls. 4to. *Naples*.

Describes the site of Pompei, gives 14 detailed sections of the ashes, &c. by which the city was covered, and describes the eruption.

Rutot, A. [Section at St. Gilles, near Brussels.] *Ann. Soc. Géol. Belg.* t. vi. pp. cxxiii, cxxiv; and *Proc.-verb. Soc. Mal. Belg.* t. viii. pp. xlvii, xlviii.

Gives a nearly perfect succession of the beds on the right bank of the Senne, U. Ypresian, Bruxellian, Laekenian, L. Wemmelian.

——. Note sur les fossiles du Tongrien inférieur. [L. Tongrian Fossils.] *Proc.-verb. Soc. Mal. Belg.* t. viii. pp. v-vii, lxxxv, lxxxvi. Records occurrences of Gasteropoda in the Limbourg district.

Rutot, A., and E. Vanden Broeck. Quelques mots sur le quaternaire. *Ann. Soc. Géol. Nord*, t. vi. pp. 215-225.

Discuss statements by Gosselet, and by Ortlieb and Chelloneix. In Belgium the loam is only the result of the superficial alteration of the "ergeron," not a separate deposit, the uneven line between them varying with the humidity of the soil, and never being marked by a layer of pebbles; the loam, too, follows the undulations of the ground. W. W.

Rzehak, Anton. Mittheilungen über die geognostischen Verhältnisse auf der Route Brood-Serajevo. [Geology of the Brood-Serajevo Route.] *Verh. k.-k. geol. Reichs.* pp. 98-104.

Eocene at Doboj, then Jurassic limestone with serpentine intrusions to Maglaj; Miocene over Eocene at Zenica. In the Lasva valley, mica-schist and lignite-beds; from Kiseljak to Serajevo Jurassic limestones. W. H. D.

—. Die jurassischen Kalkgerölle im Diluvium von Mähren und Galizien. [Jurassic Blocks in Drift in Moravia and Galicia.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 79-92.

Blocks of Jurassic limestone occur in the Drift with granite-gneiss blocks, &c. The agency of glaciers is rejected, and the northern blocks are thought to have been brought imbedded in icebergs; with these are large blocks of Jurassic limestone, falls from cliffs probably, and also mixed up are smaller pebbles washed out of the Eocene conglomerates. E. B. T.

Sadebeck, A. [Position of the Loam at Ellerbeck with *Bos primigenius*.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 205, 206. Whether upper or lower diluvial.

Sanchez y Mania, Juan. Datos geológicos de la provincia de Toledo Término de Villamiel. [Geological Data of the Province of Toledo, District of Villamiel.] *Bol. Com. map. geol. Españ.* t. vi. pp. 83-86.

Sandberger, F. Ueber Ablagerungen der Glacialzeit und ihre Fauna bei Würzburg. [Glacial Beds of Würzburg and their Fauna.] 8vo. Würzburg.

Sarran, —. Sondages divers dans le Gard, l'Herault et le Bouches-du-Rhone. [Borings in S.E. France.] *Compt. Rend. Soc. Ind. min. St. Etienne*, sér. 2, t. viii. p. 208.

Sarran d'Allard, L. de. Compte rendu d'une excursion géologique et minéralogique de Villefort (Lozère) à Alais (Gard). *Feuille Jeunes Nat.* nos. 106, 107.

—. Compte rendu de l'excursion . . . dans les terrains jurassique et crétacé à la limite septentrionale du département du Gard. *Bull. Soc. Sci. Nat. Nîmes*, ann. 7, pp. 11, pl.

—. Excursion géologique aux Vans. *Bull. Soc. Etud. Sci. Nat. Nîmes*, pl.

—. Excursion géologique d'Anduze à Mialet et Saint-Jean-du-Gard (compte-rendu). *Bull. Soc. Etud. Sci. Nat. Nîmes*.

Sartorio, A. Il colle di S. Colombano ed i suoi fossili. Studio geopaleontologico. Fasc. 1. [The Hill of San Colombano and its Fossils.] *Cronache del Liceo Fortiguerra. Pistoja.*

Sauer, A. Ueber Conglomerate in der Glimmerschieferformation des sächsischen Erzgebirges. [Conglomerate in the Mica-slate Series of the Saxon Erzgebirge.] *Zeitschr. gesamt. Nat. Folg.* 3, Bd. iv. pp. pp. 706-736, Taf. x. and a cut.

Describes the conglomerate, its occurrence and probable method of deposition, the pebbles being of granite, gneiss, and quartzite held together by a cement.

W. R. J.

Saunders, H. de. Sur la récente éruption de l'Etna. *Compt. Rend.* t. lxxxix. p. 35; translated into Italian in *Boll. R. Com. geol. Ital.* vol. x. pp. 323-329.

Sawyer, A. R. On Mining at Saarbrücken, with an Account of the Structure of the Coal Field. *Trans. N. Engl. Inst. Eng.* vol. xxviii. pp. 9-67, pls. i.-xv. (geol. map, ii.-v. sections).

Gives details relating to the history, geology, and mining of the district.

Schafarik, Franz. [Diabase from Doboj.] *Földt. Közl. köt. ix.* Geological notes from Budapest to Doboj. Petrological description of the diabase.

—. [Dobschau Greenstone.] *Ibid.*

Schalch, F. Blatt Marienberg 128. [Description of the Marienberg Sheet of the Geological Survey of Saxony.] *Erläut. geol. Specialk. Sachs.*

Schardt, Hans. [Red Molasse at the Foot of the Jura.] *Bull. Soc. Vaud. Sci. Nat. sér. 2, vol. xvi.* pp. 514-517.

Regards the Molasse as equivalent to the Siderolitic (Eocene).

Schmeisser, A. Die geognostischen Verhältnisse des Habichtswaldes bei Cassel. [Geology of the Habichtswald.] *Mitth. nat. Ver. Maja*, n. f. Heft i. pp. 1-11, Taf. i. and ii.

The district consists mostly of basalts, basalt-conglomerate, and tuff, Muschelkalk and Tertiary deposits. The brown coal is described.

Schmidt, A. R. [Coal and Iron of Mori, S. Tyrol.] *Oesterr. Zeitschr. Berg-Hütt.* Bd. xxviii. pp. 521, 522.

—. Das Kohlenvorkommen bei Ceneda und Monfumo im Venetianischen. [Coal Working, Venedia.] *Oesterr. Zeitschr. Berg-Hütt.* Bd. xxviii. pp. 579-581.

Schmidt, Sandór. [Heavy Spar from Krasznahorka-Varalja Gömör County.] *Földt. Közl. köt. ix.*

Scholz, —. Mittheilungen über einige in neuerer Zeit in der Stadt Greifswald und deren Umgegend angestellte Tiefbohrungen. [Recent Borings in Greifswald.] *Mitth. nat. Ver. Vorpom. Rügen, Jg. xi.*

Schtukenberg, Prof. Aleks. Europeiskaya Rossiya proshchliche Geologicheskiche Epoche. [Geological Epochs in European Russia.] *Ivestiya Imp. Kazansk. Univ. gode xlvi. Outch.* 1, pp. 3-32.

Schuermans, H. Grès flamand, limbourgeois et liégeois. [Belgian Sandstone.] *Bull. Comm. Roy. Art. Arch.* n. 7 et 8.

Schütze, —. [Coal-beds of Waldenburg.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 430-435.

The position of the Coals in the Waldenburg region, Silesia, may be known from the fossil flora of the lower group having a different flora from the upper; gives lists of pits in two stages. In the Silesio-Bohemian coal-basin four divisions in the coal-beds are recognized.

E. B. T.

Schwarze, —. Ueber das Vorkommen fossiler Knochen am Unkelstein. [Discovery of Fossil Bones, Unkelstein.] *Ver. nat. Ver. preuss. Rheinl.* Bd. xxxvi.

Seebach, K. von. Vorläufige Mittheilung über den Foyait und die Serra de Monchique. [On Foyaite and on the Serra de Monchique.] *N. Jahrb.* pp. 270, 271.

Note on the varieties of Foyaite, an eruptive rock occurring in Algarve, and on the geology of Monchique.

Seelheim, F. De grondboringen in Zeeland. [Boring in Zeeland.] 4to. *Amsterdam.*

Segond, H. Étude sur les Trias; les concrétions du Muschelkalk de Draguignan. *Feuille Jeunes Nat.*, Jan.

Seignette, Paul. Essai d'Études sur le Massif Pyrénéen de la Haute-Ariège. [Pyrenean Massif of Haute Ariège.] Pp. xvii, 227. 4to. *Castres.* 8 plates of sections and geol. map.

Notices previous works and maps. Describes the Topography, Hydrology, and Orography; the picturesque and topographical geology; crystalline rocks and granite; Silurian and Devonian; origin of the ophitic rocks of the crystalline limestone; Jurassic.

W. T.

Semmola, E. Sur l'état actuel du Vésuve. [State of Vesuvius.] *Compt. Rend.* t. lxxxviii. p. 860; *Boll. R. Com. geol. Ital.*, and *Riv. Sci. Ind.*

Sexe, —. Le Caldaie dei Giganti. [Giants' Kettles.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 135, 136.

Abstract of a translation into Italian (by — **Botti**) of the memoir noticed in the GEOLOGICAL RECORD for 1874, p. 95.

Sieber, Johann. Ein Beitrag zur Kenntniss der Flora der Diatomaceenschiefer von Kutschlin bei Bilin. [Flora of the Diatom-slates of Kutschlin.] *Verh. k.-k. geol. Reichs.* pp. 241-243.

List of 19 plants.

Silvestri, Orazio. Continuazione della eruzione fangosa a Paternò nelle adiacenze dell' Etna e sua fase in data del 20 dicembre 1878. [Mud-Eruption at Paterno, near Etna.] *Boll. Vulc. Ital.* an. vi. p. 28.

— Andamento della eruzione fangosa di Paternò nelle adiacenze dell' Etna in data del 14 gennaio 1879. *Ibid.* p. 30.

— La doppia eruzione dell' Etna scoppiata il 26 maggio 1879. *Catania*, and *Boll. Vulc. Ital.* an. vi. p. 67; Ed. ii. of the same noticed in *Boll. R. Com. geol. Ital.* vol. x. pp. 590-604, and in *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 399-404.

Describes the eruption of May 26 to June 8, 1879, with estimates of lava erupted both as currents and scorix. The mud volcano of Paternò, which commenced six months before, was quiet during the eruption of lava, but on cessation of the latter renewed its activity. The earthquakes which preceded and followed the eruption are also noted. E. B. T.

— Fenomeni dell' Etna successivi all' ultima eruzione del maggio-giugno 1879. [Etna after its last Eruption.] *Boll. Vulc. Ital.* an. vi. p. 118.

— L' attuale eruzione di fango, termale salato petroleifero dell' Etna, presso Paternò. [Thermal, Saline, and Petroliferous Mud Eruption, Etna.] *Illustr. Ital. Treves*, Feb. 23.

— Sulla eruzione dell' Etna del 1879. Tre incisioni sopra disegni originali fatti sul teatro eruttivo e che rappresentano. 1° un gruppo di bocche eruttive formatosi a 1950 metri di altitudine sul livello del mare alla base del Monte Nero.—2° Eruzione dell' Etna sul franco nord-nord-est osservato da Randazzo la notte del 28 maggio a ore 3 ant.—3° Fenditure ed avuallamenti di suolo che fanno capo alle bocche eruttive siluate tra il Monte Timparossa e il Monte Nero. [3 Views of Etna in Eruption: 1. Group of new Craters; 2. N.W. Eruption; 3. Chasms near Craters.] *Illustr. Ital. Treves*, sem. 2, p. 5.

— Il nuovo monte Umberto-Margherite comparso in 5 giorni sull' Etna durante la eruzione del maggio-giugno 1879. [New Hill produced on Etna.] *Illustr. Ital. Treves*, sem. 2, p. 309.

— Sulla eruzione di fango a Paternò nelle adiacenze dell' Etna dal suo principio furo alla dato del 25 maggio 1879. [Mud Eruption of Paterno, Etna.] *Giorn. Sicilia*, 15 Jan., 8 April, 20 May.

— Sulle condizioni attuali dell' Etna. $\frac{1}{2}$ fol. *Catania*.

— Sulla doppia eruzione ei terremoti dell' Etna nel 1879. Pp. 46, pl. 4to. *Catania*.

— L' eruzione dell' Etna. *Boll. Vulc. Ital.* fasc. 4-7.

— [Mud-eruptions near Etna.] *Rend. R. Ac. Sci. Napoli*, anno xviii. fasc. 4.

Silvestri, Orazio. Cronaca dei fenomeni Vulcanici etnei del 1878-1879. [Chronicle of Etna's Eruptions, 1878-9.] *Osservazioni meteoriche fatte nelle Stazioni presso le Alpi e gli Appennini, pubblicate per cura del Club Alpino Italiano*, anno viii.

— Atlante di grandi fotografie sulla eruzione ed effetti dei terremoti dell' Etna nel 1879. [Photographs of Eruption and Earthquake-results, Etna 1879.] *Catania*.

— Un viaggio all' Etna. Vol. I. con la descrizione storica, topografica, geologica, altometrica e pittoresca del grande vulcano, con una carta topografica e un' appendice con le norme e tariffe per i viaggiatori all' Etna, stabilite dalla Sezione catanese del Club Alpino-Italiano. [History, &c. of Etna.] Pp. 232, map. *Turin, Rome, and Florence*.

Silvestri, O., P. Blaserna, and G. G. Gemellaro. Sulla eruzione dell' Etna del 26 maggio 1879 e successivi terremoti. [Royal Commission Report on Eruptions and Earthquakes on Etna.] *Rome*.

Six, Achille. Compte-rendu de l'Excursion . . . dans les Terrains secondaires de l'Aisne et des Ardennes. [Secondary Beds of the Aisne and Ardennes.] *Ann. Soc. Géol. Nord*, t. vi. pp. 400-427.

Notes of sections in Cretaceous and Jurassic beds, with lists of fossils.

— Compte-rendu de l'Excursion . . . à Bruxelles et à Anvers. [Excursion to Brussels and Antwerp.] *Ann. Soc. Géol. Nord*, t. vi. pp. 431-437.

On the Eocene beds of Brussels, and the Oligocene and Pliocene beds of Antwerp.

Solanelli, —. Sulla produzione minerale del distretto consolare di Taganrog considerata anche come futuro messo di scambio. [Mineral Products of Taganrog, from a Commercial Point of View.] *Boll. Cons.* vol. xv. fasc. 11.

Solitander, C. P. T. f. Bergmästarens vid guldvaskerierna i finska lappmarken till Bergsstyrelsen afgifna berättelse om guldletnings- och vaskningsarbetet ån 1878. Atföljd af Berättelse öfver en i geologiskt afseende verkställd resa längs stränderna af Enare träsk. [Gold-washing in Finland during 1878, and account of a Geological Journey along the Shores of Enare Lake.] 49 pp., 2 plates (maps). 8vo. *Helsingfors*.

An account of the yearly expedition to the gold-bearing Ivalo river, of the method used for washing the gold, the geological occurrence of the latter, and the quantity gained. Notes on the geological conditions (primitive rocks and eruptions) in the vicinity of Enare lake.

E. E.

Sordelli, F. Sulle piante fossile recentemente scoperte a Besano circondario di Varese. *Atti Soc. Ital. Sci. Nat.* vol. xxii. p. 81.

Sorokin, —. Materiali dla Geologii Kaukasa. Geologitcheskoe opisanie tehastei gorskago i lujetchkago uiedove Tiflisskoi gubernii i

tcharopanskago uieda Kutisskoi gubernii. [Caucasian Geology. Geological Examination of the Mountainous Part and Prairies of Tiflis and the Kutis District.] Part I. Pp. 188, 2 pls. (map, &c.). 8vo. *Tiflis*.

From a bibliographic list, probably erroneously reduced to Roman characters.

Speyer, O. [Gross-Ströbitz Boring.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 213-215.

The fossils found were a mixture of L. and M. Oligocene; the beds (clays and sands) are perhaps M. Oligocene. Lignite, 4·3 m., was met with at 120 m. deep.

Spinola, A. Gita a Squillace. [A Deposit at Squillace.] Pp. 31. 32mo. *Catanzaro*.

Stache, G. Die Eruptivgesteine des Cevedale Gebietes. [Eruptive Rocks of Cevedale.] *Verh. k.-k. geol. Reichs.* pp. 66-70.

Describes the position and petrological characters of trappean, pyroclitic, and andesitic porphyries, &c.

——. Ueber die Verbreitung silurischer Schichten in den Ostalpen. [Silurian Beds in E. Alps.] *Verh. k.-k. geol. Reichs.* pp. 216-223.

Notes the range and fossils of beds belonging to stages E and F of Barrande's classification.

——. Die Umrandung des Adamello-Stockes und die Entwicklung der Permformation zwischen Val Buona Giudicaria und Val Camonica. [Neighbourhood of the Adamello Peak and Extension of the Permian, Prov. Bergamo, Italy.] *Verh. k.-k. geol. Reichs.* pp. 300-310.

Notes on Permian and igneous rocks.

——. Erwiderung auf die voranstehende Kritik meines Reiseberichtes über die Umrandung des Adamello-Stockes. [Reply to Lepsius's Criticism of the above, see p. 79.] *Verh. k.-k. geol. Reichs.* pp. 344-350.

Stache, Dr. G., und Conrad v. John. Geologische und petrographische Beiträge zur Kenntniss der älteren Eruptiv- und Massengesteine der Mittel- und Ostalpen. [On the older Eruptive and Massive Rocks of Mid. and E. Alps.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 2, pp. 317-404, pls. 12-15.

Part I. noticed in GEOLOGICAL RECORD for 1877, p. 95. Part II. relates to the Cevedale district as the chief area for the older dioritic porphyrites (Palæophyrite). Pp. 317-333, Geological and orographical. Pp. 334-404, Petrographical. The eruptive rocks are Palæozoic, and certainly older than the Permian; they appear as interbedded lavas (of which the eruptive centres are unknown) in the Quartz-phyllite series, and beds below the Verrucano. The eruptive rocks fall under two heads, the Diorite and Diorite-porphyr group, the Porphyrite

series (Palaephyrite) characteristic of the Cevedale district; these fill a gap in the family, and their description is an aid to future classification. *Suldenite*, or the grey variety, is nearer the Andesites of the newer series. *Oertlerite*: a grey variety is like the Rohrbach needle-diorite; the dark bluish-grey variety is more akin to Propylite, but has less silica. Details of chemical and microscopic analysis are given, while included fragments and crystallizations of the nature of secretions are described and illustrated by plates. Augite is frequently present.

E. B. T.

Stapff, E. Begrabene Eichenwälder im Fulda- und Werrathale. [Buried Oak-forests in the Valleys of the Fulda and Werra.] *N. Jahrb.* pp. 370-371.

Calls attention to recent discoveries in these valleys.

—, **F.** Materialien für das Gotthard Profil. [Notes for a Section of Mt. Gothard.] *Act. Soc. Helv. Sci. Nat.*

Staring, W. C. H. Voormaals en Thans: Opstellen over Neerlands Grondsgesteldheid. [Dutch Geology.] Ed. ii. 6 maps 8vo. *Zwolle*.

Staub, Dr. Moritz. *Carya costata* (Stbg.), Unger, in der ungarischen fossilen Flora. *Földt. Közl.* köt. ix. pp. 115-121 (Magyar), p. 155 (German).

A fruit found as a salt-crystal in the Torda saltworks is referred to *Carya costata*. Its leaf is *Juglans Unger*i. Both have been found united. It proves the Transylvanian beds to be of the same age as the Wieliczka (Mediterranean stage of the Neogene). The synonymy of the species and other details are given in the Hungarian text.

E. B. T.

Stayert, A. Le lac Triton et les glaciers du Lyonnais. [The Triton Lake and the Lyonnese Glaciers.] *Revue du Lyonnais*, August.

Stefani, C. de. La Montagnola Senese. [Siena Geology.] *Boll. R. Com. geol. Ital.* vol. x. pp. 202-237, 332-355, 431-460; 6 cuts.

Describes Trias, consisting chiefly of schists and quartzites with some conglomerate, no limestone; L. Lias limestone succeeds, white and crystalline, and used for ornamental purposes, the bedding obscure: above comes the "giallo di Siena," an ornamental marble, forming the second division of the L. Lias, fossils scarcely determinable. The uppermost part of the L. Lias is formed of schistose limestone and cipollino. These beds are followed by unconformable cavernous limestone, without fossils, referred to the Tithonian. With the Eocene rocks are connected Gabbro, Diabase, Serpentine, and a Chlorite-granite. The Serpentine is said everywhere in the N. Apennines to be interbedded in U. Eocene rocks, so that it was of the nature of a submarine lava-flow of Eocene times; where it touches older rocks it is unconformable to

them, and never pierces them as dykes or injections. The chlorite-granite is thought to have had a similar origin, its relations being the same. E. B. T.

Stefani, Carlo de. Argille galestrine ed argille scagliose. [Pebbly and Scaglia Clays.] *Boll. R. Com. geol. Ital.* vol. x. pp. 587-590.

In answer to Prof. Uzielli, explains that these names are used locally in different parts of Italy for the same beds, viz. a marly friable sort of clay; it is admitted to be desirable to recognize two types, and to reserve distinct names for them. E. B. T.

—. Breve descrizione geologica del poggio d' Iano. [Geology of part of Florence.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. lxxviii.-lxxxii.

U. Carboniferous slates with cinnabar, Trias, Infralias, Cretaceous, Eocene, Euphotide, Serpentine, Pliocene, and Travertine.

—. Sull' origine de diaspri. [Origin of Jasper.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. cii-civ.

This siliceous rock occurring in U. Lias, M. Cretaceous, and U. Eocene appears to be due to organic remains. It is always accompanied by manganite. W. H. D.

—. Origine delle paludi postplioceniche ed attuali della Toscana e dell' Umbria. [Origin of Post-Pliocene and Recent Marshes of Tuscany and Umbria.] *Proc.-verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. cxxvii.-cxxix.

Refers these marshes to slow erosion in beach-dammed valleys.

Steinmann, —. [Inferior Oolite of Lorraine.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 649-651.

Above the *Ammonites Sowerbyi* zone come beds, 40-60 m. thick, with *Stephanoceras Humphresianum*; these two zones together compose the Calcaire de Longwy. Above is the Bathonian, marls and clays.

E. B. T.

Stolpe, M. Beskrifning till Kartbladet "Norrköping." [Description to Norrköping sheet.] *Sver. Geol. undersökn. ser. Aa.* no. 71, pp. 1-39.

The rocks are gneiss, eurite (not eruptive), crystalline limestone, granite, trap, and pegmatite. The Quaternary deposits are till, "Åsar" (sand and pebble ridges), glacial and postglacial clay, sand, &c. E. E.

—. Några ord i fråga om rullstens-åsarnes uppkomst. [Origin of the Swedish åsar.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 258-256, plate (sections).

Gives a sketch of the theories proposed by O. Gumælius and N. O. Holst, notices their weak points, and refers to his own opinion as to the origin of the so-called inner moraines in the great inland-ice and their development into "åsar." E. E.

Stoppani, Prof. A. Il Bel Paese. Lezioni popolari di geologia e geografia dell'Italia. [Geology of Italy.] Ed. 2. 8vo. Milan. Ed. i. entered in the GEOLOGICAL RECORD for 1876, p. 113.

Struckmann, C. Ueber den Serpilit (Purbeckkalk) von Völkzen am Deister über die Beziehungen der Purbeckschichten zum oberen Jura und zum Wealden und über die oberen Grenzen der Juraformation. [The Purbeck Limestone of Völkzen; the Relations of Purbeck Beds to the U. Jurassic and Wealden; and the Upper Limits of the Jurassic Formation.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 227-243.

Gives a tabular section of the Purbeck Limestone beds of Völkzen; treats of the flora and fauna, and their distribution in other formations.

Stürzenbaum, Jozséf. Geologische Aufnahme im Comitate Wieselburg im Jahre 1878. [Geology of the Wieselburg County.] *Földt. Közl. köt. ix.* pp. 111-114. (Magyar), pp. 150-154 (German).

Results of a survey in the Wieselburg district, E. of Neusiedel lake. The beds met with are grey limestone of uncertain age; dolomite; members of the Pannonian series; lastly, diluvium of sand and Löss, river-alluvium, &c.

E. B. T.

—. Ueber die geologischen Verhältnisse der Zinkerz-Lagerstätte bei Pelsöcz-Ardó im Gömörer Comitate. [Zinc-ore Beds, Gomor County.] *Földt. Közl. köt. ix.*

—. Kössener Schichten bei Dernö im Tornaer Comitate. [St. Cassian Beds, Torna County.] *Földt. Közl. köt. ix.*

Stur, D. Studien über die Altersverhältnisse der nordböhmischen Braunkohlenbildung. [Age of N. Bohemian Lignite Formation.] *Jahrb. k.-k. Reichs.* Bd. xxix. pp. 137-174; 3 cuts.

Divides the lignite beds into three groups, the lower pre-basaltic; the middle contains the basalt and their tuffs and clays; connected with these is a lignite bed which yielded *Anthracotherium*; the upper, post-basaltic lignite and clays. These divisions are paralleled with analogous groups of lignite beds in the Leipsic district, the lithological characters being alike, while the presence of *Anthracotherium*, &c. enables the beds to be synchronized. The basaltic tuff group is accounted Aquitanian, the upper Lignite Helvetian, the lower Lignite, which is separated in the Leipsic area by the *Septaria*-clay (U. Tongrian), is L. Tongrian.

E. B. T.

Stutz, U. Die *Contorta*-zone aus der Urschweiz und *Terebratula diphyia* von der Axenstrasse. *N. Jahrb.* pp. 363-367.

Records the discovery of *Avicula contorta* zone in the Hütleren Alp, and of *T. diphyia* in the Axenstrasse

—. Geologische Notizen aus den Alpen. *N. Jahrb.* pp. 842-849; woodcut.

Notes on the geology of the Erstfeld valley and Canton Uri.

Sydney, —. Die österreich-ungarische Monarchie Geognostisch-statistische Skizze. [Geognostic-statistical Sketch of the Austro-Hungarian Kingdom.] 8vo. *Vienna*.

Szabó, Dr. Jozsef. [Relation of the Vichny Nummulitic Beds to the Trachyte.] *Földt. Közl.*

Describes the series, showing that both sandstones and tuffs are *M. Eocene*.

Szajnocha, L. Die Brachiopodenfauna der Oolite von Balin bei Krakau. [Brachiopod Fauna of the Balin Oolite.] *Verh. k.-k. geol. Reichs.* pp. 324–326, and *Denkschr. k. Ak. Wiss. Wien*, Bd. xli. pp. 197–240, pl. i.–vii.

Range of 45 species.

Taramelli, Prof. T. Appunti Geologici sulla Provincia di Belluno. *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 519–559.

Remarks on Metamorphic, Triassic, Liassic, Jurassic, Cretaceous, and Tertiary beds.

——. [Notes on the Cadoric Alps.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 221–224.

Remarks on rocks of various ages.

——. Sunto di alcune osservazioni stratigrafiche sulle formazioni precarbonifere della Valtellina e della Calabria. [Pre-carboniferous Rocks of Valtellina and Calabria.] *Rend. R. Ist. Lomb.* ser. 2, vol. xii. fasc. 19, pp. 10.

——. Sopra una grotta ossifera in valle Schieronin presso Quero. [Bone Cave near Quero.] *Giorn. Prov. Belluno*, Oct.

——. Alcuni cenni geologici sulla provincia di Pavia. [Geological Notes on Pavia] in “Le Condizioni agricole della Provincia di Pavia” by **P. Saglio**. *Voghera*.

Tardy, —. Essai sur l'âge des silex taillés de Saint-Acheul et sur la classification de l'époque quaternaire. [Worked Flints of St Acheul, and Quaternary Classification.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 401–416.

The Quaternary and present epochs are but one period, during which several oscillations have occurred in W. Europe.

——. Essai sur les oscillations des époques miocène, pliocène, et quaternaire. [U. Tertiary Oscillations.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 416–430.

History of these periods in W. Europe.

——. Failles chalonnaises et jurassiennes. [Faults in Chalons and the Jura.] *Mém. Soc. Sci. Nat. Saône-et-Loire*, t. iii. no. 1.

Tecklenburg, Th. Uebersicht der geologischen Verhältnisse der Provinz Starkenburg insbesondere der Umgebung von Darmstadt. [Geology of the Province of Starkenburg.] 8vo. *Darmstadt*.

Teller, Fr. Geologische Beschreibung der südöstlichen Thessalien. [Geology of S.E. Thessaly.] 4to. *Vienna*.

——. Geologische Beobachtungen auf der Insel Chios. *Anz. k. Ak. Wiss.* p. 299.

Terrige, G. Fauna Vaticana a Foraminiferi delle sabbie gialle nel pliocene subappennino superiore. [Vatican Foraminiferal Fauna of the Yellow Sands of the Subapennine U. Pliocene.] *Atti Ac. Pont. Linc. ann.* xxxiii.

Thomassen, T. C. [Geology of the Folge Fon Peninsula.] *Nyt Mag. Nat. Bd.* xxiv. pt. 4.

Thoroddsen, Th. De vulkanske Udbrud paa Island i Aaret 1783. [Volcanic Eruptions in Iceland in 1783.] *Geografisk Tidsskrift*, Bd. 3, pp. 67–81, map. 8vo. *Kjöbenhavn*.

Notes on the physical phenomena of the eruptions, their lava streams, and their influence on the glaciers and rivers.

Tieghem, Van. [On the Physical State of Central Europe in the Tertiary Period (as displayed in the writings of Prof. O. Heer).] *Phil. Mag.* vol. vii. pp. 72–74, from *Ann. Chim. Phys.* t. xv. pp. 157–161.

States the proportions of tropical, sub-tropical, and temperate plants in the Eocene period and in three horizons of the Miocene. Points out that in the earlier period Indo-Australian types composed the flora, and that this gave way to forms of an American character. Concludes that in the Eocene epoch the mean temperature of any part of Europe was 13 or 14 degrees higher than now, in the Miocene from 9 to 7 degrees higher, and in the Pliocene 3 degrees.

F. D.

Tietze, Dr. E. Die Thalgebiete des Opor und der Swica in Galizien. [Valley District of Opor and Swica, Galicia.] *Verh. k.-k. geol. Reichs.* pp. 152–154.

Eocene sandstone and Miocene salt beds, both yielding petroleum.

——. Ueber die wahrscheinliche Fortsetzung einiger in Croatien entwickelter Formationstypen nach Bosnien. [Probable Occurrence in Croatia of the Bosnian Types of Formations.] *Verh. k.-k. geol. Reichs.* pp. 156–160.

——. Aus dem Gebiete zwischen der Bosna und Drina. [Notes from between the Bosna and Drina, Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 232–235.

Triassic Limonite of Vares.

Tietze, Dr. E. Route Vares-Zwornik. [Travel-notes in Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 260, 261.

Notes serpentine, limestone, clay-slate, granite, &c.

——. Aus dem östlichen Bosnien. [Travel-notes in E. Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 283–287.

Flysch at Majeurca, U. Tertiary at Tuzla and Zenica.

Törnebohm, A. E. Några ord om klippbassiner och åsar. [Rock-basins and “åsar.”] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 343–358.

An answer to **Nathorst** (see above p. 87). Does not think that Pumpelly's theory, on the importance of secular weathering in the formation of lakes, can be applicable to the Swedish lakes or rock-basins. The lake-basins of Sweden are due to faults, rents, and fissures in the solid rock, and also, but in a feebler degree, to foldings and pressure, all during (not before) the time when the land was covered by the great glacial ice-sheet. Makes remarks as to the origin of the sand- and pebble-ridges (“åsar”). E. E.

——. Kunna de svenska sjöbäckena förklaras såsom en direkt följd af den sekulära förvittringen? [Are the Swedish Lake-basins a Direct Consequence of Secular Weathering?] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 466, 467.

An answer to **Nathorst** (see above p. 88). Gives an account of the reasons for the opinion that the Swedish rock-basins are not occasioned by preglacial rock disintegration, and that every preglacial rock-basin must have been either filled up by detritus or drained before the glacial ice-cap spread over the Scandinavian peninsula. E. E.

Törnquist, S. L. Några iakttagelser öfver Dalarnes graptolitskiffrar. [Some Observations on the Graptolite-Schists of Dalocarla, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 446–457.

Stratigraphical and palæontological account of the *Phyllograptus*-schist, *Trinucleus*-schist, *Lobiferus*-schist, *Retiolites*-schist, and *Leptæna*-limestone. Gives a list showing the relative age of the upper Graptolite-schists, and hints as to their analogy to English strata. E. E.

Tombeck, —. Réponse aux observations de M. Buvignier. [Reply to Buvignier (see GEOLOGICAL RECORD for 1878, p. 115).] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 310–313.

Argues for the retention of the *Ammonites tenuilobatus* zone in the Corallian. **Pellat** objects in discussion.

Tommasi-Crudeli, Corrado. Della distribuzione delle acque nel sotto-suolo dell' Agro romano e della sua influenza nella produzione della malaria. [Subsoil Water of the District of Rome, and its Influence in producing Malaria.] *Atti R. Ac. Linc.* ser. 3, *Mem.* vol. iii. pp. 183–198; double plate (geol. map and sections) and plate of sections.

Toula, Fr. Ueber Orbitoiden- und Nummuliten-führende Kalke vom "Goldberg" bei Kirchberg am Wechsel. [Nummulite Limestone from Goldberg, &c.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 123-136, sketch map; abstract in *Verh. k.-k. geol. Reichs.* p. 33.

Orbitoides-limestone was found in a small patch in the midst of crystalline schists at the Goldberg. List of fossils given. Provisionally paralleled with the Orbitoides-limestones at the base of the Ofen marls, or with the U. Eocene of Priabona. E. B. T.

—. Kleine Beiträge zur Kenntniss des Randgebirges der Wienerbucht. [Geological Notes on the Margin Hills of the Vienna Basin.] *Verh. k.-k. geol. Reichs.* pp. 275-280.

1. Occurrence of *Pecten* cf. *Margherita* in L. Muschelkalk of the Kaltenleutgeben valley; 2. *Bactryllium*- and *Halobia*-Marl of the same; 3. L. Muschelkalk of the same; 4. St.-Cassian beds, Rothenstadt valley, and 5. in Kaltenleutgeben valley. W. H. D.

Tournier, J. Le Beaujolais à l'époque glaciaire. [Beaujolais in the Glacial Period.] *Feuille Nat.* Feb.

Tournouër, R. Notes paléontologiques sur quelques-uns des terrains tertiaires observés dans la Réunion extraordinaire de la Société géologique à Fréjus et à Nice. [Palæontological Notes on Tertiary Deposits at Fréjus and Nice.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 841-857.

Notices the fauna, and gives a table of the deposits.

Trautschold, H. Ueber den Jura von Isjum. [Jura of Isjum, S. Russia.] *Bull. Soc. Imp. Nat. Mosc.* t. liii. pp. 249-263, pl. iii. (fossils).

Notes on the fauna. The beds are U. Jurassic.

Trejdosiiewicz, Jan. Opis badań geologicznych dokonanych w Królestwie Polskiem w roku 1878 oraz spostrzézén we wsiach Zbrzy i Kleczanowie. [Geological Tour in Poland.] *Sprawozd. kom. Fizyogr. Krakow*, t. 13, pp. 113-123.

Notes Cretaceous rocks at Łódski; Devonian and Trias at Opatów; Tertiary limestone in Lubelski; Silurian slate and M. Devonian limestone at Zbrza; and Silurian rocks at Kleczanów. Discusses the age of the quartzite mass S.E. of Mt. Kieleck. W. H. D.

Tribolet, M. de. [Landslip at Crêt-Taconnet.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 454-456.

The hill consists of U. Neocomian limestone with clay partings, dipping at 45°, and undermined by quarrying.

—. Note sur la Présence d'une Source Minérale à Valangin, suivie d'une Statistique des sources minérales du canton et de renseignements nouveaux sur quelques-unes d'entre elles. [Mineral Springs, Valangin, &c.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 459-470. 1879. I

Historical account of the Valangin chalybeate spring, and of a search now in progress for it. List of 25 mineral springs, with bibliography and quotations. See also *Le Val de Ruz* (a Fontaines journal), Aug. 7, 1875.

Tribolet, M. de. Note sur le Cénomanien de Gibraltar (Neuchâtel) et de Cressier, avec un aperçu sur la distribution de ce terrain dans le Jura. [Cenomanian of Neuchâtel.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 500-508.

Notes the discovery of the deposit in 1837. Gives a list of 17 fossils, and describes the beds. The Cenomanian lies on Urgonian, Neocomian, or Valanginian beds. W. H. D.

———. [Sinking-in of Glacial Drift at Gibet.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 526-529.

Attributes the sinking to hollows left outside the masonry of the railway-tunnel below.

———. Sur l'origine des fausses Marmites de Géants des bords du lac de Neuchâtel. [False Giants Kettles on Lake Neuchâtel.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 529, 530.

Recently formed 'pots' in limestone at the lake edge.

———. Notes Géologiques et Paléontologiques sur le Jura neuchâtois. IX. Sur la présence de fossiles du Gault aux mines d'asphalte (Presta) du Val-de-Travers. [Gault Fossils in the Asphalte Mines, Val de Travers.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 531-533.

List of 22 species of Mollusca.

Tromelin, G. de. Étude des terrains paléozoïques de la Basse Normandie, particulièrement dans les départements de l'Orne et du Calvados. *Compt. Rend. Assoc. Franç.* pp. 493-501.

Gives a table of the formations (Laurentian to Devonian), and describes their divisions and fauna.

———. Les terrains paléozoïques de l'Ouest de la France. [Palæozoic Formations of W. France.] *Compt. Rend. Assoc. Franç.* sess. 7, p. 605.

Notice of his work on the subject.

Trutat, E., and — Gourdon. Sur une Carte des Blocs Erratiques de la Vallée de l'Arboust, Ancien Glacier d'Oô (Haute-Garonne). [Map of Erratic Blocks, Valley of the Arboust.] *Mat. Hist. Homme*, sér. 2, t. x. p. 27; *Bull. Soc. Hist. Nat. Toulouse*.

See also GEOLOGICAL RECORD for 1878, p. 117.

Ubahgs, Casimir. Description géologique et paléontologique du Sol du Limburg; avec Catalogue général des fossiles du terrain

crétacé, Coupe de la superposition des couches, et Description de quelques grands vertébrés de la craie supérieure de Maastricht. [Geology of Limburg.] Pp. 278; 7 plates. 8vo. *Ruremonde*.

Describes (pp. 15–50) the newer Quaternary beds of N.W. Europe, discussing their age. Tertiary of Limburg with lists of fossils, pp. 51–57. Cretaceous 58–175; Special Description of Maastricht beds with lists of fossils; Tables of Cretaceous fossils, pp. 197–237; Marls with Analyses. Carboniferous Rocks, 180–196.

Describes a new species, *Chelonia Suycherbuykii*, from the upper part of the Maastricht beds; gives notes on *Mosasaurus Camperi*, *M. gracilis*, and *Chelonia Hoffmanni*. W. T.

Ussher, W. A. E. On the Triassic Rocks of Normandy and their Environments. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 245–267.

The author refers the Silurian and Devonian pebbles in the Budleigh Salterton Bed to the palæozoic area in the district now occupied by the Channel. He shows the nature and composition of the Normandy Trias, and specifies the various palæozoic rocks in La Manche; deducing from the facts put forward the strong improbability of the Budleigh pebbles being derived from Normandy, where the Trias beds are of more recent age than the Budleigh Bed, and the strong probability of the derivation of many of the foreign fragments in the S. Devon Trias from palæozoic and igneous rocks in the Channel area. W. A. E. U.

Utiesenovic, O. Die Naturschätze im nördlichen Croatien. [Natural Resources in N. Croatia.] Geol. map. 8vo. *Vienna*.

Uzielli, G. Conclusioni di una memoria sulle Argille scagliose dell'Apennino. *Boll. R. Com. geol. Ital.* vol. x. pp. 425–431.

A summary of the author's views on the origin, &c. of the clay of the Apennines.

Vacek, Mich. Ueber Vorarlberger Kreide. [Cretaceous of the Vorarlberg.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 4, pp. 659–758, pls. 18–19a and 4 cuts; Abstract in *Verh. k.-k. geol. Reichs.* p. 124.

Describes the series as showing the absence of any break between the Jurassic and Cretaceous. The beds noticed in detail are:—1. Tithonian; 2. Berrias Beds, or those which come between the Stramberg and Valangian series, being chiefly marls; 3. Siliceous limestone; 4. Neocomian; 5. Urgonian, in two divisions; 6. Aptian; 7. Gault; 8. Sceiver limestone (Cenomanian and Chalk). The system of foldings to which the beds have been subjected is shown by 8 sections, and is discussed in detail: since the folding here is not of the same type as that described by Prof. Heim on the other side of the Rhine valley, his Glarus “double-fold” is criticized. Among the fossils noted, the following are new species:—*Lytoceras sequens*, *Hoplites vicarius*, *Isoarca neocomiensis* from M. Neocomian of Breiteberg. *Ceritella uryonensis*,

Cerithium Zitteli, *Nerita bicostata*, *Opis inornata* from L. Urgonian of Bezeck. *Waldheimia pseudomagas* from Gault of Margarethenkapf.

E. B. T.

Vacek, M. Sui dintorni di Roveredo nel Trentino. *Boll. R. Com. geol. Ital.* vol. x. pp. 40-46. Translated from *Verh. k.-k. geol. Reichs.* See also GEOLOGICAL RECORD for 1878, p. 118.

—. Ueber schweizer Kreide. [Swiss Cretaceous.] *Verh. k.-k. geol. Reichs.* pp. 33, 34.

Compares the gaps at the base of the Anglo-French Cretaceous series, with the complete sequence in the Jura.

Vallée Poussin, [Prof. C.] de la, and A. Renard. Note sur la diorite quartzifère du Champ-Saint-Véron (Lembecq). [Quartzose Diorite, Lembecq.] *Bull. Ac. R. Belg. sér. 2, t. 48*, pp. 128-157.

Describes the relations of the diorite and Silurian rocks. The latter are altered by the intrusion of the diorite. The microscopic structure, origin of constituents, veins, quasi-stratification, and casual minerals of both classes of rock are described.

W. H. D.

Vanden Broeck, E. Compte rendu de l'excursion faite à Anvers les 27 et 28 Juillet, 1879. [Excursion to Antwerp.] *Proc.-verb. Soc. Mal. Belg.* t. viii. pp. lxvii-lxxxv, plate iii. (from the *Annales*) and pp. xc, xci.

Details of sections and lists of fossils of Pliocene and Quaternary beds. The effects of oxidation are pointed out.

—. Rapporti fra i depositi terziari d'Italia ed il deposito delle Sabbie d'Anversa. *Boll. R. Com. geol. Ital.* x. pp. 148-154.

Translated extract from *Esquisse géologique*, &c. (See GEOLOGICAL RECORD for 1878, p. 118.)

Vanden Broeck, E., and P. Cogels. Diluvium et Campinien. Réponse à M. le Dr. Winkler. [Drift and Campinian. Reply to Winkler. (See the GEOLOGICAL RECORD for 1878, p. 122.)] *Proc. verb. Soc. Mal. Belg.* t. viii. pp. xviii-xxxx.

Summarize Winkler's memoir, accepting some of his conclusions with and some without reserve.

Vercoustre, —. [Boring at Bourbourg.] *Ann. Soc. Géol. Nord*, t. vi. pp. 34, 35.

Through Recent, Ypresian and Landenian, and Chalk 214 metres.

Verri, Capt. Antonio. Sul Canale Pliocenico del Velino. [Pliocene Channel of the Velino.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 31, 32.

—. Alcune note sui Terrani Terziari e Quaternari presi negli ultimi Viaggi sul Bacino del Tevere. [Tertiary and Quaternary Beds of Tiber Basin.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 329-336.

Notes Eocene, Miocene, and Pliocene sedimentary, and Quaternary volcanic rocks.

Vidal, Luis M. Excursion Geologica por la Isla de Mallorca. [Geological Excursion in the Island of Majorca.] *Bol. Com. map. geol. Españ.* t. vi. pp. 1-28; 4 drawings of magnified sections of porphyries by **Adan de Yarza**.

There are Quaternary and Tertiary, Cretaceous and Jurassic rocks. determined by fossils, and eruptive rocks. There is workable lignite. black, shining, and compact; it rests on Neocomian, and contains fresh-water shells; has 54 p. c. of fixed carbon. There is workable copper-ore, malachite, copper-pyrites, and phillipsite. Ores of iron, zinc, and lead are also found. J. F.

Vilanova y Piera, D. J. Les Kaolins de la Province de Tolède; Le Granit de l'île d'Elbe. [Toledo Kaolin; Elban Granite.] *Compt. Rend. Assoc. Franc.* sess. 7, pp. 597-599.

Describes the occurrence of Kaolin (decomposed pegmatite) at Mont-alban. Its mass is about 140 metres high and 3 or 4 kilometres in circumference. Thinks the granite of Elba is part of that of the N.E. coast of Sicily, but somewhat altered. W. R. J.

Villa, G. B. La Dolomia a Gastrochene nell' Apennino Centrale. [Gastrochaena Dolomite in the Central Apennines.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 303, 304.

Corrects a reference of Canavari's.

Villot, A. Sur les terrains d'eau douce supérieurs du Bas-Dauphiné septentrional. [Upper Freshwater Beds of N. Low Dauphiny.] *Rev. Sci. Nat.* pp. 14.

Vincent, G., and A. Rutot. Note sur un Puits Artésien foré par M. le baron O. Van Ertborn, à la brasserie de Boeck à Molenbeek-St.-Jean, près Bruxelles. [Well near Brussels.] *Ann. Soc. Géol. Belg.* t. vi. pp. 1-14.

Give details of the section, to a depth of 115.5 metres in Tertiary and Cretaceous beds, and describe the beds under the headings Quaternary, Ypresian, Senonian, and Aachenian. From the character of a conglomerate found at the bottom it is probable that Silurian beds would be touched a little deeper. W. W.

—, —. Note sur un Sondage exécuté par M. le baron Van Ertborn à la Brasserie de la Dyle, à Malines. [Well at Mechlin.] *Ann. Soc. Géol. Belg.* t. vi. pp. 15-27.

Give details of the section, to a depth of 130 metres; an analysis of the water, by **E. Van Melckebeke**; remarks on the beds passed through, referred to Wemmerian, Lackenian, and Ypresian; details of a well section at Briendouck, to a depth of 72 metres; and a comparison of these 2 wells with 3 others. W. W.

Vincent, G., and A. Rutot. Coup d'œil sur l'état actuel d'avancement des connaissances géologiques relatives aux Terrains tertiaires de la Belgique. [Tertiaries of Belgium.] *Ann. Soc. Géol. Belg.* t. vi. pp. 69-155. [Separate copies transpose the names of the authors, and give a further list of Errata.]

Give their proposed classification of the beds; full lists of fossils, showing the range of the species, under the heads Heersian, Landenian, Ypresian, Paniselian, Bruxellian, Laekenian, and Wemmelian; a table of the synchronism of Belgian, French, and English Eocene beds; and remarks on Oligocene and Pliocene. W. W.

—, —. Observations nouvelles relatives à la faune du système Bruxellien et à celle de l'ancien Laekenien supérieur, actuellement système Wemmélien. [Bruxellian and Wemmelian Faunas.] *Proc. verb. Soc. Mál. Belg.* t. viii. pp. xi-xiv.

List of fossils from Sables Moyens and Barton Clay.

Virga, C. Catalogo de' fossili della valle d' Isnello nelle Madonie. [Catalogue of the Fossils of the Isnello Valley, Palermo.] *Atti XII. Congr. Scienz. Ital.*

Virgilio, F. Cenno geognostico-mineralogico sulla miniera cuprifera di Champ-de-Praz in valle d' Aosta. [Geology and Mineralogy of the Copper Mine, Val d'Aosta.] *Turin.*

Vogt, T. H. L. Granitens og syenitens bækning i forhold til den nuværende overflade. [Joints of Granite and Syenite, and their relation to the present Surface.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 439-446.

Observations in the syenite-district north of Christiania and in the granite near Fredrikshald show that those eruptive rocks are divided into plates by fissures (1-6 feet thick), which follow the present configuration of the rock-surface. The fissures are older than the glacial period, and perhaps are due to the cooling of the rock. E. E.

—, —. Öen Maaln. [The island Maaln, Norway.] *Naturen*, 1879, no. 10, pp. 159, 160.

Notes on a small island consisting of pebbles, the form of which is changed by almost every storm.

Voisin, H. Mémoire sur les Sources Minérales de Vichy et des Environs. Gisement—Travaux de Captage—Régime—Origine. [The Vichy Waters, Geology and Origin.] *Ann. Mines*, sér. 7, t. xvi. pp. 488-597, pls. ix., x.

The district consists of granite, porphyry, Carboniferous and Miocene beds, the latter covered by basalt. The mode of collection, detailed sections of rocks, temperatures, composition, and yield of the several springs are given. W. H. D.

Wagner, C. J. Die geologischen Verhältnisse des Tunnels am Unterstein mit Einbeziehung des Terrains zwischen Lend und

Taxenbach. [Geological Relations of Unterstein Tunnel, &c.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 3, pp. 493-536, pls. 15-17, and 15 fig.

The tunnel, on the left side of the R. Salzach, near Taxenbach, was driven in chloritic, talcose, and other schists, which here form both sides of the valley. The right side was the site of a great landslip in 1794; the beds dipping towards the river slid down and carried great masses of drift. The tunnel was driven in the steep side of the river in beds dipping into the hill; it collapsed, and a new one further into the hill had to be made. The fissures which formed and the crushing of the masonry, &c. are described. E. B. T.

Wahlund, J. Dännemora grufvor. Historisk skildring. [History of the Dännemora Mines.] Pp. 114, 326, map. 8vo. *Stockholm.*

Weiss, E. [Culm- and Coal-flora.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 217-220.

Points out the relations of the flora, more especially as regards Stur's works on the subject.

—. [Fossils from Carboniferous of Silesia.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 435-438.

Cites the occurrence of marine fossils in dolomite 23 m. below a coal-bed near Königshütte; below this bed come most of the *Sphenopteris*, *Lepidodendron*, and *Calamites* which are found in the lower beds. From several species occurring in both, thinks the two floras are not so distinct as supposed. E. B. T.

—. [Coal Plants from Silesia.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 439-440.

Compares the plants from the Radowenz or upper coals of Silesia, and synchronizes the beds with those of Ottweil in the Rhine district.

—. [Note on the Flora of the Schwadowitz Beds.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 633-635.

The Schwadowitz beds lie below the Radowenz beds, and above the Schatzlar beds, which are identical with the Saarbrücken beds. The flora of the Schwadowitz coal is akin to that of the Ottweil beds of the Saar district. E. B. T.

Wenckenbach, Fr. Beschreibung der Bergreviers Weilburg, Bonn. [Description of the Weilburg Mining District.] 8vo. With map.

Wibel, —. Die geognostischen Ergebnisse einiger neueren Tiefbohrungen auf hamburgische Gebiete und Umgegend. [Borings in Hamburg.] *Verh. nat. Ver. Hamburg-Altona*, n. F. Bd. iii.

Wickersheimer, —. Note sur un Gîte de Phosphate de Chaux situé près de Cette. [Phosphate Deposit near Cette, Herault.] *Ann. Mines*, sér. 7, t. xvi. pp. 283-288.

Occurs in veins in Oxfordian dolomite, and is regarded as produced by phosphate of magnesia in percolating water acting on the carbonate of lime. W. H. D.

Wiik, F. J. Geologiska iakttagelser under en resa i östra Finland, mellan Joensuu och Lahtis, sommaren 1878. [Geological Observations during a Journey in Finland.] *Bidrag Finl. n. xxxiii.* pp. 3-20.

Notes on the stratigraphical arrangement and microscopical constitution of the rocks (for the most part gneisses, granites, porphyry, gabbro, &c.), and on the direction of glacial striæ. Concretionary gneisses mentioned. E. E.

—. Om fossilierna i Ålands silur-kalksten, jemförda med de i Sverige och Estland förekommande. [Fossils of the Ålandic Silurian Limestone compared with those of Sweden and Estland.] *Bidrag Finl. n. xxxiii.* pp. 21-32.

Notes on the fossils found in erratics on the island Åland in the N. part of the Baltic. Thinks that these erratics are fragments of a Silurian deposit formerly spread over Åland and the adjacent sea-bottom. The fossils are more Estlandic than Swedish. E. E.

Zeiller, —. L'Eruption de l'Etna. *Rev. Sci. sér. 2, t. xvii.* pp. 35-38.

A description of the eruption of the 29th May, 1879.

Zepharovich, V. von. Ueber das neue Vorkommen von Halotrichit und Melantherit zu Idria. [Discovery of Halotrichite and Melantherite at Idria.] *Anz. K. Ak. Wiss. Wien,* p. 59.

Zsigmondy, Vilmos. A Városligeti artéze Kút Budapestén. [Artesian Wells in the Budapest State Woods.] Pp. 86, geol. map, 3 pls., 5 tables. 8vo. *Budapest.*

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- Adan de Yarza, R.** Apuntes geológicos acerca del criadero de hierro de Somorrostro on la provincia de Viscaya. [Iron Ore Beds of Somorrostro, Biscay.] *Bol. Com. map. geol. Españ.* t. iv. pp. 49-62, pl. B (map and section). [1877.]
These beds overlie Cretaceous deposits. Three analyses given.
- Alayrac, —.** Notice sur le creusement de la fosse no. 5 des mines Courrières. [Shaft no. 5 in the Courrières Mines.] *Bull. Soc. Industr. min. St. Etienne*, sér. 2, t. vi. p. 541. [1877.]
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Notes localities where the surface-bed yields various antiquities.
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Notes the deposit and mode of working.

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Labat, —. Etude sur la station et les eaux d'Alhama de Aragon. Pp. 23. 8vo. *Paris*, 1877.

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Describes 3 periods of eruption. Gives list of minerals.

——. Costituzione Geologica del Suolo Romano. From *Mono-grafia Arch. e Statis. de Roma e Compagna Romana*, Esposiz. Parigi, 1878, pp. 31; 3 woodcuts. [1878.] [Incorrectly entered in GEOLOGICAL RECORD for 1878, p. 91.]

A general description of the Campagna, of the volcanic and other hills which border it, and of the river-valleys.

Marchese, E. Relazione delle miniere di Monte Santo in Sardegna per l'esercizio 1873–74. *Genoa*, 1875.

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Marinoni, C. Di un lembo eocenico nelle falde settentrionali del Monte Plauris. [An Eocene Ridge N. of M. Plauris, Friuli.] *Atti R. Ist. Ven. Sci.* [1877.]

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Mercey, -- de. Nouvelles indications sur les Croupes de la Somme. [New Notes on the Croupes of the Somme.] *Bull. Soc. Linn. Nord*, t. iii. p. 352. [1877.] See the GEOLOGICAL RECORD for 1877, p. 83.

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The mountains are chiefly Permian and Triassic, but Archæan, Palæozoic, Mesozoic, and Tertiary rocks also occur, 47 divisions being shown on the map. These are described petrologically and palæontologically, and correlated with those of other countries, and the varying geographical conditions indicated. The dolomites were barrier-reefs, separating masses of tuff and breccia (from contemporaneous volcanic eruption) both inside and outside. The subsequent movements forming the Alps are also dealt with.

W. H. D.

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——. Fenomeni eruttivi dell' Etna nell' interno del cratere centrale. [Eruption in the Central Crater of Etna.] *Ibid.* p. 73. [1874.]

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Stöhr, E. Ueber den neuesten Bronzefund in Bologna und über das Vorkommen des Bernsteins in der Emilia in prähistorischer Zeit. [Latest Find of Bronze in Bologna, and Occurrence of Amber in Emilia in Prehistoric Times.] *Sitz. Münch. Anthropol. Ges.* 1878.

Stoppani, A. I soffioni boraciferi di Toscana. [Borax-bearing Soffioni of Tuscany.] *Le prime letture* (an educational periodical), an. viii. p. 514. [1877.]

Taramelli, T. Scavi di Concordia. *Gazzetta di Venezia*, 31 Jan. 1874.

—. Cenni geologici e climatologici sulla provincia di Treviso. [Geology and Climatology of Treviso.] In **Vianelli and Carpenè's** *Monografia Enologica*. Turin, 1874.

—. Costituzione geologica della provincia di Udine. *Ann. Statist. Udine*, vol. i. [1876.]

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Trutat, —. Le Massif de la Maladetta et la station de la Dent de la Maladetta. [The Maladetta Massif, Pyrenees.] *Bull. Soc. Hist. Nat. Toulouse*, t. xi. p. 51. [1877.]

Trutat, E., and — Gourdon. Catalogue des blocs erratiques de la vallée d'Arboust (Haute-Garonne). [Catalogue of Erratic Blocks of the Arboust Valley.] *Bull. Soc. Hist. Nat. Toulouse*, t. xii. p. 188. [1878.]

Tucci, — di. Dell' antico e presente stato della campagna di Roma, in rapporto alle salubrità dell' aria e alle fertilità del Suola. [Past and Present State of the Roman Campagna.] *Rome*, 1878.

Verzili, G. Miniera d' oro presso Collepardo. [Gold Mine, Collepardo (Rome).] *Il Buonarroti (Rome)* for Oct. 1876. [1877.]

Vidal, L. M. Nota acerca del sistema cretaceo de los Pirineos de Cataluña. Camidos y Rudistos. [Cretaceous System of the Cataluna Pyrenees.] *Bol. Com. map. geol. Españ.* t. iv. pp. 257–372, pls. i.–vii., cuts. [1877.]

The region described is in the provinces of Gerona, Barcelona, and Lérida. Many sections are described and their fauna noted. The following new species are described and figured, and a table showing the age and occurrence of all species found is given :—

Chama Coquandi, C. Gasoli.
Monopleura Falgasi, M. Montsecana,
M. minuta.
Requienia Moroi.
Hippurites Montsecanus, H. Maestrei.

Radiolites Fumanyæ, R. Moroi, R.
Osenis, R. angulosus, D'Orb., var.
ibericus, R. laciniatus.
Sphærolites Aagerensis, S. pulchellus,
S. planicostatus, S. minor, S. Posæ.
W. R. J.

Vilanova y Piera, Jean. Jardin de los Glaciares en Lucerna. *Rev. Ci. fis. nat.* t. xx. p. 453. [1878.]

Zittel, K. A. Ueber das Alter der Kalke mit *Terebratulula Rotzoana*. *Zeitschr. deutsch. geol. Ges.* Bd. xxix. p. 634. [1877.]

Zoccheddu, —. Catalogo delle principali rocce e dei minerali della Sardegna esistenti nelle collezioni del Museo della R. Università di Cagliari. [Rocks and Minerals of Sardinia in the Cagliari University Museum.] 1878.

Zundel, Ch., and M. Mieg. Notice sur quelques sondages aux environs de Mulhouse et en Alsace. [Borings at Mulhouse and in Alsace.] *Bull. Soc. Industr. Min. St. Etienne*, t. xlvii. p. 631. [1877.]

Geologische Tabellen und Durchschnitte über den Grossen Gotthardtunnel. Lief. 4. *Zurich*, 1877.

See also :—

Hoffmann, Dr. K. S. Bakony Basalts : *post*, under **PETROLOGY**.

Inostranzeff, A. Rocks of Olonetz : *post*, under **PETROLOGY**.

Smyth, W. W. Cyprus : *post*, under **ASIA**.

AMERICA.

Sub-Editor E. WETTERED, F.G.S., F.C.S.

Abbot, Dr. C. C. Pliocene Man. *Kansas City Rev. Sci. Ind.* vol. iii. no. 7, pp. 413-415. (From *Science News*.)
 An outline of Prof. Whitney's memoir, which carries man back to the Pliocene in California.

Aguirre, —. La geologia de la Sierra Baya. *Am. Soc. cient. Argent.* t. viii. ent. i.

Andrews, Prof. E. B. Discovery of a new group of Lower Carboniferous Rocks in South-eastern Ohio. *Amer. Journ.* ser. 3, vol. xviii. p. 137.
 Describes the Rashville group between the Maxville Limestone and U. Waverly sandstone.

—. [Proposed Corrections in the Geological Atlas of the State of Ohio (see *post*, under MAPS).] *Amer. Journ.* ser. 3, vol. xviii. p. 410.

The L. Carboniferous Limestone is not a continuous belt round the Coal Measures, but occurs in few patches. There is a conglomerate at the base of the Coal Measures in Pike and Jackson Counties. The Devonian in the Scioto valley is wrongly mapped. W. H. D.

Anon. Boundary-line of Chili and Bolivia. *Proc. R. Geogr. Soc.* vol. i. pp. 785, 786, map (not geological).

The province of Atacama contains gold, silver, saltpetre, iron, and copper. The most valuable product is the silver of Canacoles, which is found in a range of Jurassic limestone and porphyry. The nitrates of soda and potash are found on the hill-sides, in valleys, and in plains, coated with sand or with salt. F. D.

—. Les mines d'argent de la Névada. [Silver Mines of Nevada.] *Le Monde de la Science et de l'Industrie*, no. 1.

Ashburner, C. A. The Kane Geyser Well. *Amer. Journ.* ser. 3, vol. xviii. pp. 394, 395. (From the *Petroleum Reporter*, Pittsburgh, Pa.)
 Describes a gas- and water-spouting bore-hole in Pennsylvania.

Attwood, George. A Contribution to South-American Geology.

With an Appendix by the Rev. Prof. T. G. Bonney. *Quart. Journ.*

Geol. Soc. vol. xxxv. pp. 582-590, pl. xxxiii. (map and section).

Treats of a tract about 150 miles long, between Puerto de Tablas, on the Orinoco, and the Caratal gold-field. The rocks along the route are chiefly granites, with diabase, diorite, gabbro, basalt, syenite, gneiss, quartzite, schists, and slaty rocks. Gives an analysis of diabase-rock, in which occur the gold-producing veins. The Appendix is a "Note on some Rocks from South America," and describes 9 rocks. W. W.

Attwood, —. On a Gold Nugget from South America. *Journ. Chem. Soc.* no. 200.

Bannister, H. M. Note on the Age of the Laramie Group or Rocky Mountain Lignitic Formation. *Amer. Journ.* ser. 3, vol. xvii. pp. 243-245.

"The Laramie epoch was throughout one of stratigraphic disturbance rather than that there was only one great orographic change at its close, and the reasonableness of the opinion of its transition character is not yet altogether disproved." The evidence of several observers is adduced in proof of this. W. H. D.

Barcena, Mariano. [Geology and Palæontology of Mexico.] *An. Mus. Nac. Mexico*, t. i. ent. 6, pp. 237-278.

Barnes, Dr. G. W. The Hillocks or Mound-Formations of San Diego, California. *Amer. Nat.* vol. xiii. pp. 565-573, figs. 1-3.

Describes the curious mound-like formations of parts of the Pacific slope of N. America, and endeavours to account for their formation.

Barrett, Dr. S. T. Note on the Section by Mr. T. Nelson Dale on page 293 of this volume. *Amer. Journ.* ser. 3, vol. xviii. p. 409.

Correlates some of the beds referred to by Mr. Dale (see below) with some described by himself in a paper noticed in the GEOLOGICAL RECORD for 1878, p. 314. W. H. D.

Barris, Rev. W. H. [The Local Geology of Davenport.] *Proc. Davenport. Ac. Sci.*

Barrois, [Dr. Charles]. [Letter on American Geology.] *Ann. Soc. Géol. Nord*, t. vi. pp. 87-94.

Treats of the valley of the Mississippi (Falls of St. Anthony, rapidity of present sedimentation, pockets of clay and sand in Silurian and Devonian limestones). W. W.

——. [Presidential Address.] *Ann. Soc. Géol. Nord*, t. vi. pp. 228-245.

Treats of N. American geology, noticing the coal-basins of the United States, and their production, compared with that of England, France, Germany, &c. W. W.

Benton, E. R. The Richmond Boulder Trains. *Bull. Mus. Harvard Coll.* vol. v. pp. 17-42; 2 maps.

1. Geography and Topography. 2. Bed-rocks of the Region. 3. Glacial Markings upon the Bed-rocks. 4. Superficial Deposits underlying the Trains. 5. Description of the Boulder Phenomena. Notes:—A. Method of making the Survey; B. Microscopic Analysis of Rocks [by M. E. Wadsworth]; C. Remarks on the Stratigraphical Geology.

R. B. N.

Blake, Prof. W. P. The Ore-deposits of Eureka District, Eastern Nevada. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 554-563, map of the Eureka and adjacent mines.

Boll, J. Texas in its Geognostic and Agricultural Aspect. *Amer. Nat.* vol. xiii. pp. 375-384.

Contains observations on the geological structure of Texas, from an agricultural point of view.

Bowie, A. J. Hydraulic Mining in California. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 27-100.

Considers the nature of deposits in which gold is found (pp. 27-37). The gold country is the W. slope of the Sierras. The rivers run in deep gorges or canons, between which are ridges or "divides," on the top of which gold "placers," or detrital deposits containing gold, are found. Deep "placers" are ancient river-channels filled with detritus, sometimes to a depth of several hundred feet. These channels belong to the ancient river system, and range nearly at right angles to the present ones. Gold is also found in "shallow placers," but the quantity of gold in top-gravel is seldom great. "Pay-dirt" is obtained chiefly from strata within eight or ten feet of the bed-rock.

T. V. H.

Broadhead, Prof. G. C. Origin of the Loess. *Amer. Journ.* ser. 3, vol. xviii. pp. 427, 428.

The Missouri loess is evidently of aqueous origin.

——. Remarks on Hunt's and Dana's Sections. *Kansas City Rev. Sci. Ind.* vol. ii. no. 11, pp. 664-668.

Criticizes the tables of formations given by Prof. J. D. Dana and Prof. T. S. Hunt (the latter in Macfarlane's Railway Guide).

Brown, C. B. On the Tertiary Deposits on the Solimões and Javary Rivers, in Brazil. With an Appendix, by R. Etheridge. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 76-88, pl. vii. (fossils).

The old river-deposit of the Upper Amazon is like the Loess of the Rhine, and lies on Tertiary clays. Some details of sections are given. The beds form a tract 300 miles by 50, and contain associated fresh-water and brackish-water shells. When they were deposited the sea must have reached 1500 miles inland from the present shore. In the Appendix, "Notes on the Mollusca," the following new sp. are described and figured:—*Dreissena acuta*, *Anisothyris (Pachydon) tumida*, *Corbula canamensis*, *Neritina puncta*, *N. ziczac*, *Hydrobia dubia*, *Cerithium coronatum*, *Melanopsis Brownii*, *Melania tricarinata*, *M. scalaroides*, and *M. bicarinata*. W. W.

Brown, C. B. On the Ancient River-deposit of the Amazon. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 763–777, pl. xxxviii. (geol. map), 11 woodcuts (sections).

Describes many cliff-sections on the main river and on tributaries. The absence of shells, the great amount of false-bedding, and the non-continuity of the beds show that the deposits were due to river-action. Describes the process of widening, and of deposit of materials in the valley. The map shows the extent of the recent alluvium and of the old river-deposit. W. W.

Campbell, J. L. Silurian Formation in Central Virginia. *Amer. Journ.* ser. 3, vol. xviii. pp. 16–29.

Stratigraphical description of U. Silurian (8 divisions), L. Silurian (13 divisions, including 2 Cambrian), and Archæan (4 divisions).

— . Geology of Virginia: Continuation of Section across the Appalachian Chain. *Amer. Journ.* ser. 3, vol. xviii. pp. 119–128.

Describes the L. & U. Silurian and Devonian rocks.

— . Geology of Virginia:—Balcony Falls. The Blue Ridge and its geological connections. Some theoretical considerations. *Amer. Journ.* ser. 3, vol. xviii. pp. 435–446.

Details of Archæan, Primordial, and L. Silurian rocks. The modes of contortion and denudation are suggested.

Chamberlin, Prof. T. C. Annual Report of the Wisconsin Geological Survey for the year 1878. Pp. 52. 8vo. *Madison, Wisc.*

Notes recent glacial drift of the Alps as bearing on the surface geology of Wisconsin.

Chance, H. M. I. The Northern Townships of Buller County; II. A Special Survey, made in 1875, along the Beaver and Shenango Rivers, in Beaver, Lawrence, and Mercer Counties. *2nd Geological Survey of Pennsylvania.* Pp. 248; 4 maps, 1 profile and 154 vertical sections. 8vo. *Harrisburg.*

(Report V.) Correlates the Pennsylvanian and Ohio coal-measures (see **White**, p. 162).

Church, Prof. J. A. The Comstock Lode, its Formation and History. Pp. 226; 6 pls., 13 figures. *New York*.

The diorite and propylite are beds, tilted. The latter is being changed into quartz by siliceous water, forming the lode.

Claypole, Prof. E. W. Pre-glacial Formation of the Beds of the Great American Lakes. *Canad. Nat. n. s.* vol. ix. no. 4, pp. 213-227.

Analyzes Newberry's objections to the views in his paper (see GEOLOGICAL RECORD for 1877, p. 120). Gives a table showing the thickness of the Drift in N. Ohio. R. B. N.

[**Collett, John.**] First Annual Report of the Department of Statistics and Geology of the State of Indiana. Pp. 514. 8vo. *Indianapolis*.

Condon, Rev. Thomas. On some points connected with the Igneous Eruptions along the Cascade Mountains of Oregon. *Amer. Journ.* ser. 3, vol. xviii. pp. 406-408.

The basaltic lavas flowed down valleys, and streams have since eroded the intervening rocks leaving basalt-capped ridges. Ash-beds with Pliocene plant-remains are also noted. W. H. D.

Cook, Prof. G. H. On the Southern Limit of the last Glacial Drift across New Jersey and the adjacent parts of New York and Pennsylvania. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 467-470, map.

— Annual Report of the State Geologist of New Jersey for 1878. Pp. 132, map. 8vo.

Describes superficial deposits, and gives analyses of iron-ores and limestones.

Cope, Prof. E. D. The relations of the Horizons of Extinct Vertebrata of Europe and North America. Observations on the Faunæ of the Miocene Tertiaries of Oregon. Pp. 37. 8vo. *Washington*.

Cox, Prof. E. T., Prof. J. Collett, and Dr. G. M. Levette. Eighth, Ninth, and Tenth Annual Reports of the Geological Survey of Indiana, made during the years 1876, '77, and '78. Pp. 541, maps, plates, and cuts. 8vo. *Indianapolis*.

Describe the geology of Wayne, Crawford, and Harrison counties, give a general sketch of that of the State, and special reports on the economic geology. **S. A. Miller** gives a catalogue of Hudson River, Utica Slate, and Trenton fossils from S.E. Indiana, S.W. Ohio, and N. Kentucky. **Prof. J. S. Newberry** gives a list of Subcarboniferous fish from Harrison Co., describing the following new species:—

Chomatodus selliformis, C. angustus,	Thrinacodus bicornis.
C. obliquus.	Deltodus cinetus.
Lisgodus affinis.	Petalodus Knappi.
Orodus Colletti.	Archæobates gigas (n. gen.).
Helodus lævis.	

The geology and geography of Wyandotte and adjacent caves are fully illustrated. W. H. D. & W. R. J.

Crosby, W. O. Native Bitumens and the Pitch Lake of Trinidad. *Amer. Nat.* vol. xiii. pp. 229-246.

An account of the general features of the above, and of the principal theories as to their origin.

Dale, T. N., Junr. On the Age of the Clay-slates and Grits of Poughkeepsie. *Amer. Journ.* ser. 3, vol. xvii. pp. 57-59. And under the title: A Contribution to the Palæontology of the Vicinity of Poughkeepsie. *Proc. Poughkeepsie Soc. Nat. Sci.*

Fossils prove the beds to be of the Trenton period.

——. The Fault at Rondout. *Amer. Journ.* ser. 3, vol. xviii. pp. 293-295; 3 woodcuts.

Describes the section (L. Helderberg unconformably on Hudson River Beds). Complicated contortion occurred both before and after the deposition of the L. Helderberg.

W. H. D.

Dall, W. H. [Raised Beach, California.] *Proc. U. S. Nat. Mus.* vol. i. p. 3.

Postpliocene marine shell-bed, 12 miles from and 600 feet above the sea at San Luis Rey.

Dana, Prof. J. D. Note on Mountain-making by the Contraction of the Earth's Crust. *Amer. Journ.* ser. 3, vol. xvii. pp. 325, 326.

In N. America but one epoch of uplifting occurred between the Archæan and the Trias, *i. e.* in the Appalachians at the close of the L. Silurian, and in the Rocky Mountains none till the close of the Cretaceous. The folds are all steep on one side and gentle on the other. Contraction will not be intermittent, and will produce uniform, wide folds.

W. H. D.

——. On the Hudson River Age of the Taconic Schists and on the Dependent Relations of the Dutchess County and Western Connecticut Limestone belts. *Amer. Journ.* ser. 3, vol. xvii. pp. 375-388. woodcut map. Supplement vol. xviii. pp. 61-64.

Shows that the Taconic schists are Hudson River beds, and the 5 limestone belts are bands of L. Silurian brought up by flexures. The supplement consists of recorded dips.

W. H. D.

Dawson, G. M. Notes on the Glaciation of British Columbia. *Canad. Nat.* n. s. vol. ix. no. 1, pp. 32-39.

Describes the S. part of the Interior Plateau and parts of the coast and Gold Ranges. Is a continuation of a paper noticed in the GEOLOGICAL RECORD for 1875, p. 118.

R. B. N.

Dawson, Dr. J. W. Remarks on Recent Papers on the Geology of Nova Scotia. *Trans. Nov. Scot. Inst.*; *Canad. Nat.* n. s. vol. ix. no. 1, pp. 1-16.

Refers to two papers by the Rev. Dr. Honeyman (*Trans. Nov. Scot. Inst.* vol. iv. part iv. 1878), and criticizes:—(1) The age assigned to

the fossiliferous rocks of Nictaux and New Canaan and their relation to the intrusive granites of the region, regarding these beds as of Oriskany Sandstone and not Clinton age; (2) The geology of the Pre-carboniferous rocks of the eastern part of Nova Scotia and Cape Breton. R. B. N.

Dawson, Dr. J. W. Address delivered to the Natural History Society [of Montreal]. *Canad. Nat. n. s.* vol. ix. no. 3, pp. 165-180.

Contains a review of the geology of the Quebec group and the associated rocks in the province of Quebec.

Derby, O. A. A Contribution to the Geology of the Lower Amazons. *Proc. Amer. Phil. Soc.* vol. xviii. no. 103, pp. 155-178; *Arch. Mus. Nac. Rio Janeiro*, vol. ii. 1878; and abstract by **R. Rathbun** in *Amer. Journ.* ser. 3, vol. xvii. pp. 464-468.

Describes Laurentian, Huronian, L. Silurian, Devonian, Carboniferous, Cretaceous, and Tertiary rocks, giving the range, lithology, and fossils of each. W. H. D.

——. The Geology of the Diamantiferous Region of the Province of Paraná, Brazil. *Proc. Amer. Phil. Soc.* vol. xviii. no. 103, pp. 251-258; *Amer. Journ.* ser. 3, vol. xviii. p. 310.

Describes Archæan, Cambrian or L. Silurian, Devonian?, Triassic?, and volcanic rocks. The diamonds occur in river gravels formed from the Devonians. W. H. D.

Donald, J. T. Notes on Elephant Remains from Washington Territory. *Canad. Nat. n. s.* vol. ix. no. 1, pp. 53-56.

These remains were found 12 feet from the surface in a bog at Hangman's Creek. The tabulated measurements given of the jaw, molar, and tusk compare favourably with those described by Billings (*Canad. Nat.* 1863, p. 135) as *Euelephas Jacksoni*. Refers these to *E. primigenius* var. *Jacksoni*. R. B. N.

Dressel, L. [Cotopaxi.] *N. Jahrb.* Heft i. pp. 57, 58.

Describes the eruption of Cotopaxi on 23 Aug. 1878, and the ascent of Tunguragua.

Dwight, Prof. W. B. On some recent Explorations on the Wappinger Valley Limestone of Dutchess County, New York. *Amer. Journ.* ser. 3, vol. xvii. pp. 389-392.

The Barnegat limestone is shown by its fossils to be Trenton Limestone. Delicate *Chatetes* and *Trocholites* are abundant in it.

Edmunds, E. S. Geology of La Grange County, Indiana. *Kansas City Rev. Sci. Ind.* vol. iii. pp. 28-38.

Fossils and rocks of Mesozoic age mentioned.

Egleston, Prof. T. Copper Mining on Lake Superior. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 275-312.

The copper-bearing rocks are amygdaloids and conglomerates, in which the copper and silver are pseudomorphs. There are also veins. There are 15 conglomerate beds, which are recognized by their geological position; 11 of these range throughout the copper region of Lake Superior. T. V. H.

Endlich, —. On some striking Products of Erosion in Colorado. Pp. 34. 8vo. *Washington.*

Eustis, W. E. C. The Nickel Ores of Oxford, Quebec, Canada. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 209–214.

Fontaine, W. M. Notes on the Mesozoic Strata of Virginia. *Amer. Journ.* ser. 3, vol. xvii. pp. 25–39, 151–157, 229–239.

Describes the Triassic and Jurassic beds of 5 of the 7 secondary "belts" in hollows in Azoic rocks. They consist of conglomerates, sandstones, limestones, and shales, with trap. Discusses the age of the Richmond coal-field with regard to its flora. Some of the Mesozoic beds of the Petersburg belt seem to be of glacial origin (boulder-clays). The flora is of Wealden character. Certain superficial deposits containing erratics are referred with doubt to the Mesozoic, though generally regarded as of Glacial age. W. H. D.

Frazer, Persiflor, Jun. The Mesozoic Sandstone of the Atlantic Slope. *Amer. Nat.* vol. xiii. pp. 284–292.

A sketch of the contents of three memoirs upon the Mesozoic formations of N. America below the Cretaceous, by the author, O. J. Heinrich, and W. M. Fontaine. H. A. N.

Geinitz, Dr. H. B. Die neuen geographischen und geologischen Durchforschungen der Vereinigten Staaten Nordamerikas. [Recent Geological Work in the United States.] *Sitz. Isis Dresden*, pp. 2–5. Summary of several American works.

Goodyear, W. A. [Auriferous Sand of California.] *Eng. Min. Journ.* vol. xxviii. pp. 280, 299.

Hallowell, J. K. Description of Various Mines in Colorado. *Kansas City Rev. Sci. Ind.* vol. iii. no. 1, pp. 47–50. Refers chiefly to the Benjamin Franklin Mine.

Harrington, Dr. Proceedings of the Natural History Society [of Montreal]. *Canad. Nat.* n. s. vol. ix. no. i. pp. 56–57. Account of Apatite and the minerals with it in the region N. of Ottawa, with geological remarks by Principal Dawson.

Hawes, George W. On a Group of dissimilar Eruptive Rocks in Campton, New Hampshire. *Amer. Journ.* ser. 3, vol. xvii. pp. 147–151.

Within 100 yards are 5 parallel dykes (diabase, olivine diabase, diorite, and 2 syenite). These are petrologically described, and analyses are given. W. H. D.

Hawkshaw, J. C. Notes on the Consolidated Beach at Pernambuco.

Quart. Journ. Geol. Soc. vol. xxxv. pp. 239-244, woodcut section.

This is a sandstone ridge, underlain by sand with shells and stones, below which is another rock-bed. The cementing material is carbonate of lime. Other like beaches are noted. W. W.

Hayden, Dr. F. V. Eleventh Annual Report of the United States Geological and Geographical Survey of the Territories, embracing Idaho and Wyoming. Being a Report of Progress of the Exploration for the year 1877. Pp. xxviii, 720, pls. 10, lxxvi., topogr. map. 8vo. *Washington*.

Dr. F. M. Endlich reports on the Sweetwater District, Prozoic, Laurentian, Huronian, Silurian, Devonian, Carboniferous, Permian, Trias, Jura, Cretaceous, Eocene, Miocene, Pliocene, Recent, and Eruptive Rocks. Analysis of leucite porphyrite is given. The Sweetwater group (new name) is Miocene, between the Bridger and Niobrara groups. Gold, silver, iron, graphite, coal, gypsum, alkalies, and petroleum occur in the district. Concludes with a list of minerals.

Dr. C. A. White reports on the Palæontological Field-work for the season of 1877, with lists of Tertiary and Cretaceous species and the conditions of deposit. **Dr. White** adds "Contributions to Invertebratæ Paleontology.—No. 1. Cretaceous Fossils of the Western States and Territories," in which, amongst other species, the following are described as new, with pls. 1-10:—

Caryophyllia Johannis, *C. egeria*.
Exogyra Valkeri.
Placunopsis Hilliardensis.
Crassatella cimarronensis.
Tancredia? *cœlionotus*.
Cardium trite.
Baroda subelliptica.
Pachymya? *Herseyi*.

Glycimeris Berthoudi.
Paliurus pentangulatus.
Actæon Woosteri.
Actæonina prosocœila.
Neritina incompta.
Anchura Haydeni, *A. mudgeana*.
Turritella Marnochi.

Orestes St. John reports on the Téton, and **Dr. A. C. Peale** on the Green River Division, including rocks of all the major formations. The latter quotes analyses, &c. of mineral springs, and introduces the following new subformations:—QUATERNARY, Salt River Conglomerate, Malade Valley Group, Cache Valley Group, Marsh Valley Group, Gentile Valley Group; PLIOCENE?, Salt Lake Group; JURASSIC, *Belemnites* Beds, *Pentacrinus* Beds; JURASSIC?, *Meekoceras* Beds. List of minerals and rock specimens of the Green River district are given.

W. H. D.

Heinrich, O. J. The Manhattan Salt Mine at Goderich, Canada. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 125-144, map of Mine.

Notes the extent and economical relations of the deposit, with details of beds bored through.

Heinrich, O. J. The Mesozoic Formation in Virginia. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 227-274, map and plate (sections).

Describes its geographical distribution and nature of the rocks composing it. Section in the "Richmond Belt," with details of beds (pp. 256-260). Also analyses of Coals and Statistical Table. T. V. H.

Hicks, L. E. Boulders in Coal. *Amer. Journ.* ser. 3, vol. xvii. pp. 68, 69.

In the Nelsonville vein, New Straitsville, Ohio. Others referred to.

Hilgard, Prof. E. W. The Loess of the Mississippi Valley and the Æolian Hypothesis. *Amer. Journ.* ser. 3, vol. xviii. pp. 106-112.

The American loess is demonstrably of aqueous origin, but evidently similar to that of China. Æolian drift would be less porous, nor is the loess of the composition of average rock as stated by Richthofen. W.H.D.

Holley, A. L. Notes on the Iron Ore and Anthracite Coal of Rhode Island, Massachusetts. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 224-227.

Holmes, W. H. Fossil Forests of the Volcanic Tertiary Formations of the Yellowstone National Park. *Bull. U. S. Geol. Surv. Terr.* vol. v. pp. 125-132.

Describes a series of volcanic subaerial and subaqueous deposits, 5500 feet thick, full of silicified forests in place, some trunks being 10 feet in diameter. W. H. D.

— Notes on an Extensive Deposit of Obsidian in the Yellowstone National Park. *Amer. Nat.* vol. xiii. pp. 247-250, figs. 1-3.

Notices an exposure of obsidian, with a note on the occurrence of Indian implements made of that rock.

Hunt, T. S. The History of some Pre-Cambrian Rocks in America and Europe. *Proc. Amer. Assoc.* vol. xxviii. pp. 279-296.

Gives his views on the origin of silicated crystalline stratified rocks. Epitomizes the history of Pre-Cambrian rocks, and gives a correlation.

Huntington, J. H. On the Iron Ore of Bartlett, N. H. *Proc. Boston Soc. Nat. Hist.* vol. xx. pp. 288-292.

Irving, B. D. Note on the Stratigraphy of the Huronian Series of Northern Wisconsin; and on the Equivalency of the Huronian of the Marquette and Penoque Districts. *Amer. Journ.* ser. 3, vol. xvii. pp. 393-398.

The Keweenawan gabbro lies unconformably on the Huronian, as the latter does on the Laurentian. The Huronian consists of limestone, quartzite, schists, diorite, &c., in 22 divisions. W. H. D.

James, U. P. Geological Nomenclature. (The Cincinnati Group.—The "Hudson River Group.") *Paleontologist*, no. 4, pp. 27, 28.

Gives reasons for declining to accept the Committee's report on the subject, which proposes to do away with the term Cincinnati Group and refer it to the Hudson River Group. R. B. N.

Keyes, W. S. The Eureka Lode, of Eureka, Eastern Nevada. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 344-371, map.

Koch, —. Mittheilungen über Berg- u. Hütten-Industrie der Weststaaten Nord Amerika's. [Mining Industry in N.W. America.] *Zeitschr. Berg- Hütt. Salinenw.* Bd. xxvii. p. 145.

Part III. treats of the occurrence of silver-ores in Nevada, Idaho, Montana, California, Utah, and Colorado. Part IV. of the silver lead ores, with a section of the Richmond and Emma Mines, and a final section of the Eastern smelting works. H. B.

Le Conte, Dr. J. On the Extinct Volcanoes about Lake Mono and their relation to the Glacial Drift. *Amer. Journ.* ser. 3, vol. xviii. pp. 35-44.

Lake Mono is a strong solution of sodic carbonate, with lime carbonate, salt, and borax. Masses of tufa surround it. Islands of diatom-shells based on basalt occur in the lake; whilst on the plain to the S. are many volcanic cones from 200 to 2700 feet high, and very perfect. The plain consists of glacial clays and gravels (some of the beds being much contorted by the passage of glaciers over them) covered with a sheet of volcanic dust. The lake is increasing, and the neighbouring glaciers of the Sierra Nevada advancing. W. H. D.

Leeds, A. R. Lithology of the Adirondacks. 30 *Ann. Rep. New York State Mus. Nat. Hist.*

See GEOLOGICAL RECORD for 1877, p. 203.

Leidy, Prof. —. Fossil Remains of a Caribou. *Proc. Ac. Nat. Sci. Philadel.* for 1879, pp. 32, 33.

Note of discovery of jaws, &c. of *Rangifer caribou*, from the Loess of Muscatine, Iowa, with a list of land and freshwater shells found therewith. W. H. D.

Lesley, J. P. Notes on a series of Analyses of the Dolomitic Limestone Rocks of Cumberland County, Pa., made by Messrs. Hartshorne and Hartranft in the Laboratory of the Second Geological Survey of Pennsylvania. *Proc. Amer. Phil. Soc.* vol. xviii. no. 102, pp. 114-120.

Gives a set of analyses, and draws inferences therefrom.

McAdams, William. Geological History of Jersey County. Pp. 2. 4to. *Otterville, Illinois.*

McCauley, Lieut. C. A. H. Notes on Pagosa Springs, Colorado.

Report to the Secretary of War. Pp. 27. 8vo. *Washington*.

19 thermal springs in Cretaceous rocks. H_2S and CO_2 produce ebullition; temperature 101° – 141° F. $CaCO_3$ and Na_2SO_4 are the principal saline constituents, and form thick deposits. W. H. D.

Macfarlane, Dr. James. An American Geological Railway Guide, giving the Geological Formation at every Railway Station, with Notes on Interesting Places *en route*. Pp. 216, map. *New York*.

Opens by a general description of North-American geology, with tables of succession. To each State is prefixed a list of its formations.

——. Coal Regions of America; their Topography, Geology, and Development. Ed. 3. 8vo. *New York*.

Macfarlane, Thomas. Remarks on Canadian Stratigraphy. *Canad. Nat. n. s.* vol. ix. no. 2, pp. 91–102.

A reply to Selwyn. See *post*, p. 147.

McGee, W. J. On the Complete Series of Superficial Geological Formations in North-eastern Iowa. *Proc. Amer. Assoc.* vol. xxvii. pp. 36.

The Drift consists of 5 members, any of which may be absent; these are, descending:—1, a loess-like clay; 2, a like clay with gravel, sand, and boulders; 3, a darker clay with pebbles and boulders; 4, a blue or black clay mostly free from stones and with wood, &c.; 5, a yellow clay much mixed with (or replaced by) sand and gravel, with small boulders. These are described in detail. 1 and 2 generally occur together. In the district of 3 (=the greater part of Iowa) eskers and *roches moutonnées* are common. In 4, cut timber is said to have been found. A tabular account of 83 wells in the Drift is given, and another of the ratio of various pebbles found in the Drift. The origin of the 5 members is discussed, glacial conditions being first invoked, then a milder climate, and then a return to glacial. W. W.

——. Notes on the Surface Geology of a part of the Mississippi Valley. *Geol. Mag.* dec. ii. vol. vi. pp. 353–361, 412–420, 528.

Gives the results of additional observations in the region described in the above and in other localities, mainly in Illinois. Makes 6 divisions in the Drift. E. W.

——. On the Superposition of Glacial Drift upon Residuary Clays. *Amer. Journ.* ser. 3, vol. xviii. pp. 301–303.

Describes compact Devonian clays in Iowa which have been glaciated without disturbance in places, and elsewhere contorted and worked up into overlying drift without a distinct line of separation.

W. H. D.

Marten, K. Phosphoritische Kalke von der westindischen Insel Bonaire. [Phosphoritic Limestone from Bonaire.] *Zeitschr. deutsch. geol. Ges.* xxxi. pp. 473-479.

A porous rock, in the cavities of which is mammillated calcic phosphate, contains calcite. The fossils in it are teeth of *Oxyrhina gomphodon* and *Carcharodon megalodon*. E. B. T.

Miller, S. A. North American Mesozoic and Cænozoic Geology and Palæontology. *Journ. Cincinn. Soc. Nat. Hist.* pp. 44.

Mitchell, Henry. Notes on alleged changes in the Relative Elevations of Land and Sea. *Appendix 8 in Report of the Coast and Geodetic Survey for 1877.*

Indicates stationary and oscillating areas on the E. coast of America.

Mosler, Chr. Der Kupferbergbau am Obern See. [L. Superior Copper Mines.] *Zeitschr. Berg- Hütt. Salinenw.* Bd. xxvii. p. 77.

A continuation (see GEOLOGICAL RECORD for 1877, p. 126). Contains details of the working, with sections, of the mines of the upper peninsula of Michigan, including Quincy and Hecla and Calumet. The produce for 1877 is given. H. B.

Nelson, E. T. On the Origin of Stylolites. *Amer. Journ.* ser. 3, vol. xvii. p. 68.

Notes the formation of stylolites on the Nipigon (Lake Superior).

Newberry, Prof. J. S. Report of the Geological Survey of Ohio. Vol. III. Geology and Palæontology. Part I. Geology. Pp. 954. 8vo.

Preface, review of geological structure of Ohio, and details of different counties. Other county reports by J. J. Stevenson, M. C. Read, A. W. Wheat, E. Orton, J. Hussey, F. C. Hill, A. C. Lindemuth, J. T. Hodge, and H. Herzer. Supplemental reports by Profs. E. B. Andrews and E. Orton. W. H. D.

——. On the Discovery of Mineral Wax, Ozocerite, in Utah. *Amer. Journ.* ser. 3, vol. xvii. pp. 340, 341.

Quotes a letter from Prof. J. E. Clayton, on the presence of this mineral in Tertiary shales of the Wahsatch range, and gives results of chemical examination by S. B. Newberry. W. H. D.

——. The Geological Survey of the Fortieth Parallel. *Pop. Sci. Monthly*, July, pp. 16.

——. On some mooted Points in American Geology. *Ann. N. York Acad. Sci.* sess. 1878.

Ochsenius, —. [Salt Beds near Salt Lake City.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 411-413.

Describes salt-bed 25 ft. thick, with red sandstones, &c., a few miles from Salt Lake City.

Orton, Prof. Edward. Note of the Lower Waverly Strata of Ohio. *Amer. Journ.* ser. 3, vol. xviii. pp. 138, 139.

The Waverly Black Shale is shown to be identical with the Berea Shale, not with the Cleveland Shale. Other corrections follow upon this correlation.
W. H. D.

Palton, J. H. The Natural Resources of the United States. *New York.* Price 50 cents?

Peale, Dr. A. C. Jura-Trias Section of South-eastern Idaho and Western Wyoming. *Bull. U.S. Geol. Surv. Terr.* vol. v. pp. 119-121.

The series is:—Jurassic (*Belemnites* Beds (Shales), 700 feet; *Pentacrinus* Beds, Limestones, 800 ft.); Triassic? (Red Beds, Quartzitic Sandstones, 1000+ ft.; *Meekoceras* Beds Sandstones 3000+ ft., 1200+ ft.); Carboniferous? Limestone.
W. H. D.

Poole, H. S. The Gold-leads of Nova Scotia. *Canad. Nat. n. s.* vol. ix. no. 3, p. 189 (abstract). In full in *Quart. Journ. Geol. Soc.* vol. xxxvi. pp. 307-313 (1880).

Powell, J. W. Report on the lands of the arid region of the United States, with a more detailed account of the lands of Utah. Ed. 2. 4to. *Washington.* (*U.S. Geogr. and Geol. Survey of the Rocky Mountain Region.*)

Rand, T. D. On a Belt of Serpentine and Steatite in Radnor Township, Delaware County, Pa. *Proc. Ac. Nat. Sci. Philadel.* for 1878, pp. 402-404.
Gives stratigraphical details.

Rathbun, Richard. Prof. Hartt on the Brazilian Sandstone Reefs. *Amer. Nat.* vol. xiii. pp. 347-358.

An account of the "stone-reefs" of the coast of Brazil, with an abstract of Hartt's views as to the manner in which they have been formed.
H. A. N.

— *Brazilian Corals and Coral Reefs.* *Amer. Nat.* vol. xiii. pp. 539-551.
Gives an account of the true coral-reefs of the coast.

Raymond, R. W. [Zinc-ore in S. Missouri.] *Eng. Min. Journ.* vol. 28, p. 240.
1879.

Raymond, R. W. The Jenks Corundum Mine, Macon County, North Carolina. *Trans. Amer. Inst. Min. Eng.* vol. vii. pp. 83-90.

Gives 2 analyses of chrysolitic rocks. Notices opinions as to the origin of the mineral.

Rice, W. N. The Geology of Bermuda. *Kansas City Rev. Sci. Ind.* vol. iii. p. 434. Abstract of paper read at the Saratoga Meeting of *Amer. Assoc.*

The general form of the archipelago suggests the idea that it is a compound atoll; the only atoll in the Atlantic Ocean.

Rolker, C. M. The late operations on the Mariposa Estate. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 145-164, plate, 3 figs.

Describes rocks met with in the construction of a mining tunnel.

Selwyn, A. R. C. Geological Survey of Canada. Report of Progress for 1877-78.

Introductory report: pp. 9.

Report of observations on the stratigraphy of the Quebec group: pp. 15.

G. M. Dawson. Report on Exploration in the southern portion of British Columbia: pp. 187; 5 plates of views; one of sections and cuts. Gives an account of the character of the region, and treats of its geology, pointing out the minerals of economic value. The following Appendices are added:—A. The Fossil Insects [Tertiary] collected, in 1877, by **S. B. Scudder**, in which the following new species are described:—*Penthetria similkameena*, *Nebria paleomelas*, *Cercyon? terrigena*, *Trox Oustaleti*, *Buprestis tertiaria*, *B. saxigena*, *B. sepulta*, *Cryptohypnus? terrestris*, *Tenebrio primigius*, *Hygrotrechus Stålî*, *Cercopis Selwyni*, *Cœlidia columbiana*, *Planophlebia gigantea* (n. gen.).—B. List of Tertiary Plants from localities in the southern part of British Columbia, by **J. W. Dawson**, with the new sp. *Equisetum similkamense*.

R. Bell. Report on an exploration of the east coast of Hudson's Bay, 1877: pp. 37, 6 plates (views), and cuts. Describes the geology of the district, its climate and general character.

R. Bell. Report on the country between Lake Winnipeg and Hudson's Bay: pp. 31, 5 plates of views. Describes the geology and climate.

R. W. Ellis. Report on the Pre-Silurian rocks of Albert, Eastern King's, and St. John Counties, Southern New Brunswick: pp. 13.

L. W. Bailey. Report on the Pre-Silurian (Huronian) and Cambrian, or Primordial Silurian Rocks of Southern New Brunswick: pp. 34.

G. F. Mathew. Report on the Upper Silurian and Kingston (Huronian) of Southern New Brunswick: pp. 6.

G. F. Mathew. Report on the Superficial Geology of Southern New Brunswick: pp. 36.

H. Fletcher. Report of Surveys and Explorations in Cape Breton, N.S.: pp. 32. Pre-Silurian to Millstone Grit rocks were met with, and the minerals contained are noted.

B. J. Harrington. Report on the Minerals of some of the Apatite-bearing veins of Ottawa County, Quebec, with notes on miscellaneous rocks and minerals (also, under different title, in *Canad. Nat. n. ser.* vol. ix. no. 4, pp. 242-256): pp. 50, cuts. Analyses are given.

G. Hoffmann. Chemical contributions to the geology of Canada. On Canadian Apatite: pp. 14. W. R. J.

Selwyn, A. R. C. The Stratigraphy of the Quebec Group and Older Crystalline Rocks of Canada. *Canad. Nat. n. s.* vol. ix. pp. 17-31.

Describes 3 groups in the Quebec series:—(1) L. Silurian Group, Levis Formation; (2) Volcanic Group, probably Cambrian; (3) Crystalline Schist Group. Refers to the work of the Canadian Survey, and notes a new system for the reconstruction of the geological map of E. Canada, to include the country from Lake Winnipeg to Cape Breton and Labrador. R. B. N.

Smith, Dr. E. A. Geological Survey of Alabama. Report of Progress for 1877 and 1878. Pp. 139, 4 geol. maps. 8vo. *Montgomery, Ala.*

Chaps. i., ii. Basin of the Tennessee (Palæozoic and Drift), with descriptions of Madison, Morgan and Marshall, Lauderdale and Limestone, Lawrence, Colbert, and Franklin Counties (details of sections, and analyses of limonite by **Henry McCalley**). iii. Brown's Valley, one of the folds in the Cumberland tableland. iv.-vi. Warrior Coal Field, with descriptions of Jefferson, Tuscaloosa, Walker (map), Winston (map), Fayette (map), Lamar, and Marion (map) Counties, with details of sections and analyses of coals, slate, iron-ores, and shale (one by **Prof. T. N. Lupton**). vii. Chemical Report by **Henry McCalley**, with tables of analyses. W. W.

Smith, —. The Iron-ores of Alabama with special reference to their geological relations. *Proc. Amer. Assoc.* vol. xxvii.

Smock, Prof. J. C. The Fire-clays and associated Plastic clays, Kaolins, Felspars, and Fire-sands of New Jersey. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 177-192.

The localities and geological positions of the more important are given; also analyses.

— . The height of the Glacier. *Kansas City Rev. Sci. Ind.* vol. iii. pp. 434, 435.

Abstract of paper read to *Amer. Assoc.* (not published) on the limits and thickness of continental glaciation in New Jersey. The average thickness of ice in the Catskill must have been 3000 ft. T. V. H.

Spence, Thomas. The Prairie Lands of Canada [&c.]. Pp. 56. 8vo. *Montreal.*

Analysis of Manitoba soil by **Dr. Macadam** p. 23; and of 12

samples of coal by Prof. Haanel from the Saskatchewan, Maryland, Pennsylvania, Virginia, and Nova Scotia, p. 31. W. H. D.

Stearns, R. E. C. Remarks on Fossil Shells from the Colorado Desert. (*California Acad. Sci.*) *Amer. Nat.* vol. xiii. pp. 141-154.

Describes the clayey deposits, with recent freshwater shells, in a well at Walter's Station, the surface being 195 feet below the Pacific Ocean; and remarks on the distribution of the species. Also refers to the Miocene and Pliocene beds of the district. W. H. D.

Stevenson, Prof. J. J. Note on the Fox Hills Group of Colorado. *Amer. Journ.* ser. 3, vol. xvii. pp. 369-373.

Stratigraphical details on the South Platte river, N. of Denver.

——. Notes on the Laramie Group of Southern Colorado and Northern New Mexico, East from the Spanish Ranges. *Amer. Journ.* ser. 3, vol. xviii. pp. 129-134.

Describes details of the group, and its relation to the M. Cretaceous (Fort Pierre division). The passage is palæontological rather than lithological. W. H. D.

——. Notes on the Geology of Galisteo Creek, New Mexico. *Amer. Journ.* ser. 3, vol. xviii. pp. 471-475.

The Galisteo group (trachytic breccia on sandstone) lies unconformably on Dakota and Laramie beds.

Strecker, W. Das Zink-Hüttenwesen in den Vereinigten Staaten von Nordamerika. [Zinc Smelting in the United States.] *Berg-hütt. Jahrb.* Bd. xxvii. pp. 282-353, pl. v.

The ore deposits noticed (p. 292) are those of Franklin, New Jersey, Friedericksville, Pennsylvania, and Da Soto, Missouri.

Stuart, R. Haïti or Hispaniola. *Journ. R. Geogr. Soc.* vol. xlviii. pp. 234-274.

Contains a short notice of the geology and former mineral springs.

Thorne, Dr. J. The Rosedale Gas and Coal Wells. *Kansas City Rev. Sci. Ind.* vol. iii. pp. 410-412.

Rosedale is 4 miles S.W. of Kansas City. The details of the sections of 4 wells are given. The strata passed through consist of limestone, soapstone, shales, and coals. The gas comes from the black shale or slate. T. V. H.

Todd, J. E. Richthofen's Theory of the Loess, in the light of the Deposits of the Missouri. *Proc. Amer. Assoc.* vol. xxvii. pp. 10.

Opposes the presence of *Limnea*, &c. in the loess to the æolian theory.

Upham, Warren. The Succession of Glacial Deposits in New England. *Proc. Amer. Assoc.* vol. xxvii. pp. 299-310.

Describes six successive deposits. Gives area of distribution. These deposits are sometimes concealed beneath stratified gravel, sand, and clay, brought down by rivers and melting ice. E. W.

——. Terminal Moraines of the North American Ice-Sheet. *Amer. Journ.* ser. 3, vol. xviii. pp. 82-92, 197-209.

Describes the terminal moraines of New England, New Jersey, and Massachusetts, indicating the range of the line across Ohio, Wisconsin, and Minnesota to the N. Saskatchewan. W. H. D.

——. The Formation of Cape Cod. *Amer. Nat.* vol. xiii. pp. 486-504, 522-565.

An account of the geological features (especially of the superficial geology) of Cape Cod, with conclusions as to the mode of origin of those features. W. H. D.

——. The Till in New England. *Geol. Mag.* dec. iii. vol. vi. pp. 283, 284.

There are two deposits, corresponding with Upper and Lower Till of Scotland.

Vinton, F. L. Silver Cliff in Colorado. *Eng. Min. Journ.* vol. xxvii. p. 57.

——. Leadville and the Iron Mines. *Ibid.* p. 110.

Vogdes, A. W. Short Notes on the Geology of Catoosa County, Georgia. *Amer. Journ.* ser. 3, vol. xviii. pp. 475-477.

Describes L. and U. Silurian rocks, with list of fossils from the latter. Describes *Calymene rostrata*, n. sp., from Clinton group.

Wadsworth, Dr. M. E. Report on the Copper Falls Mine, Keweenaw Co., Michigan. Pp. 14. *Boston.*

Sketches of the geological structure of Keweenaw Point. Defines the different forms of copper deposits there mixed, and gives a special description of the "ash bed" and veins of the Copper Falls Mine.

M. E. W.

Walcott, C. D. The Utica Slate and related formations. Fossils of the Utica Slate and Metamorphoses of *Triarthrus becki*. *Trans. Albany Inst.* vol. x. p. 38, 2 pls.

Gives the range of the Utica Slate and its correlatives in Cincinnati, Tennessee, Virginia, and Alabama. Objects to the term Cincinnati group. Describes *Cyathophycus* (n. gen.) *reticulatus*, *C. subsphaericus*, *Discophycus* (n. gen.), *Modiolopsis cancellata*, and *Orthoceras Oneidaense*, and gives full details of the development of *Triarthrus becki*. [In 1881 removes *Cyathophycus* to Spongidæ.] W. H. D.

White, [Dr.] C. A. Remarks on the Jura-Trias of Western North America. *Amer. Journ.* ser. 3, vol. xvii. pp. 214-218.

The Nevada Trias is of St. Cassian age, that of Idaho is Muschelkalk. There are close faunal relations with the overlying Jurassic rocks.

White, I. C. The Geology of Lawrence County, and a Special Report on the Condition of the Coal Measures in Western Pennsylvania and Eastern Ohio. 2nd Geological Survey of Pennsylvania. Pp. 336, map and 134 vertical sections. 8vo. *Harrisburg*. Price 70 cents.

Deals principally with Coal Measures, correlating the beds in the two States. (See *Chance*, p. 135.)

Whitfield, R. P. Discovery of specimens of *Maclurea magna*, of the Chazy, in the Barnegat limestone near Newburg, New York. *Amer. Journ.* ser. 3, vol. xviii. p. 227.

Note of occurrence.

Whitney, Prof. J. D. The Auriferous Gravels of the Sierra Nevada. *Mem. Mus. Harvard Coll.* vol. vi. no. 1, pp. 288, 2 maps, and 10 plates.

Gives a sketch of the topography and geology of the range, which consists of metamorphosed Triassic and Jurassic rocks, the gravels formed from those being overlain by basalt. The gravels are shown by their plant-remains to be L. Pliocene. Prof. Lesquereux finds no Coniferae among the plants: the 17 deciduous trees differ from the present flora, and point to Pliocene or Miocene as the age of the beds. Dr. Leidy has previously reported on the Mammalia, the species being some recent, some extinct. Stone implements are not rare in the gravels. Human remains occurred low down in a succession of gravel beds and lava-flows, probably Pliocene.

W H. D.

Whittlesey, —. Ancient glacial action, Kelly's Island, Lake Erie. *Proc. Amer. Assoc.* vol. xxvii.

Winchell, N. H. The Geological and Natural History Survey of Minnesota. The Seventh Annual Report. For the year 1878. 8vo. *Minneapolis*. Pp. 123, 4; 21 pls. (not geol.).

Sketch of the work of 1878, pp. 9-25, referring chiefly to Economic Geology (Copper, Silver, Iron, Gold). Chemistry by **Prof. S. F. Peckham**, 32, 33, with Analyses of 3 limestones. Report on the Museum, 47-78, with Catalogue of specimens of rocks, minerals, and fossils.

W. W.

Witter, F. M. Note on the Loess. *Muscatine Tribune*. (Muscatine Acad. Sci.)

Discusses the Iowa loess, with references to the same deposit in Nebraska and Missouri. Gives lists of Iowa fossils, noting absence of *Unio* and *Vivipara*. Concludes the origin to be aqueous.

W. H. D.

Wolf, Theodore. Viajes científicos par la República del Ecuador, verificados y publicados por ordre del supremo Gobierno de la mesma República. Pp. 224, 5 maps. 8vo. *Guayaquil*.

- (i.) Geological Tour through the Province of Loja (pp. 57, 2 maps).
- (ii.) Geological Tour through the Province of Azuay (pp. 78, 2 maps).
- (iii.) Geography and Geology of the Province of Esmeraldas (pp. 87, map). W. H. D.

———. Ein Besuch der Galápagos Inseln. 8vo. *Heidelberg*.

Wright, C. E. First Annual Report of the Commissioner of Mineral Statistics of the State of Michigan, for 1877-8 and previous years. Pp. 229, 6 pls. 8vo. *Marquette*.

Nova Scotia. Report of the Department of Mines for the year 1878. 8vo. *Halifax, N.S.*, 1879.

SUPPLEMENT FOR 1874-1878.

Anon. Gisement d'or dans l'Illinois. [Gold in Illinois.] *Moniteur Industriel Belge*, 1875, p. 348.

———. (H. S.) Little Sequatchee Coalfield. *Coll. Guard*, vol. xxxii. pp. 305, 306. [1876.]

Describes the Tennessee Coal Field of 5100 square miles. Gives details of sections of Mountain Limestone, L. Coal Measures with 3 coal seams, and U. Coal Measures with 8 seams. H. S.

———. Summary of the Field work of the Hayden Geological Survey during the Season of 1875. *The Republic (Washington)*, vol. vi. no. 3, p. 149. [1876.]

———. Wonderful Discoveries in the Sandstone Rocks of Colorado. *West Rev. Sci. Ind.* vol. i. pp. 564, 565, from the *Colorado Springs Gazette*. [1877.]

Records finding many huge bones of reptiles and birds.

———. [Nitre and Guano in Chili.] *Diario oficial de Chile*, no. 58. [1877.]

Anon. Discovery of extensive Nitrate Deposits in Chili. *London Iron Trades Exchange*, vol. xxi. p. 39. [1877.]

——. Argentiferous Mud in Oregon. *Ibid.* p. 137. [1877.]

——. [Department of Agriculture.] Province of Manitoba and North-west Territory of the Dominion of Canada. Information for Emigrants. Pp. 64. 8vo. *Ottawa*, 1878.
Geological notes, pp. 35, 36.

——. Geographical and Geological Survey of the Rocky Mountain Region, under the direction of Professor J. W. Powell. Account of work performed during the year 1877. *Amer. Journ.* ser. 3, vol. xv. pp. 342-358, 449-455. [1878.]

The geological work of Capt. C. E. Dutton, pp. 353-358, in Utah, was in Cretaceous, Eocene, and Miocene beds, with late Tertiary volcanic rocks in the following order, propylite, andesite, trachyte and dolerite, and rhyolite. W. H. D.

——. Coal and Iron in the United States. *Coll. Guard.* vol. xxxv. pp. 177, 178, 229, 230. [1878.]

Notice of the anthracitic and bituminous coal-fields of Pennsylvania.

——. Scenery of the Pacific Railways and Colorado. Pp. vii. 88; map, 71 woodcuts. 8vo. *New York*, 1878.

Touches on the geology.

Ashburner, C. A. Description of the Wilcox Spouting Water Well. *Proc. Amer. Phil. Soc.* vol. xvii. no. 100, pp. 127-135, pl. iii., with discussion by — **Briggs** [1878]; and *Amer. Journ.* ser. 3, vol. xvi. pp. 144-147.

A borehole of 1785 feet in the valley of West Clarion Creek, Pennsylvania, discharging gas, petroleum, and water at intervals in jets 85 to 115 feet high. W. H. D.

Bailey, L. W., and **Edward Jack.** The Woods and Minerals of New Brunswick, being a Descriptive Catalogue of the Trees, Shrubs, Rocks, and Minerals of the Province available for Economic Purposes. Pp. 51. 18mo. *Fredericton*, 1876.

Prepared for the Centennial Exhibition.

Barcena, Mariano. Noticia científica de una parte del estado de Hidalgo. Pp. 50, 3 pls. 8vo. *Mexico*, 1877.

Barrett, Dr. S. T. The Coralline or Niagara Limestone of the Appalachian System, as represented at Neapass Cliff, Montague, New Jersey. *Amer. Journ.* ser. 3, vol. xv. pp. 370-372. [1878.]

More Niagara than Coralline species occur here. Probably the coralline limestone is the thinned E. edge of the Niagara deposits. From it the

? n. sp. *Proetus pachydermatus* (provisional) is described, and a *Strophodonta* (provisionally *S. Nearpassii*) figured in *Pal. N. York*, vol. ii. pl. 74. W. H. D.

Barris, Rev. W. H. The Local Geology of Davenport (Iowa). *Davenport. Ac. Nat. Sci.* vol. ii. pp. 261-268, pls. x., xi. [1878.]

Bastian, A. Die Culturländer der alten America. Vol. I. Ein Jahr auf Reisen: 3 maps. Vol. II. Geschichtliche Vorarbeiten auf westlicher Hemisphäre: plates. 8vo. Berlin, 1878.

Bates, H. W. Central America, the West Indies and South America. 8vo. London, 1878.
Chap. i. Configuration of the Land, pp. 1-11.

Belt, Thomas. Discovery of Stone Implements in Glacial Drift in North America. *Quart. Journ. Sci.* Jan. 1878, pp. 22, woodcuts. Describes the deposits in New Jersey in which the implements were found, and discusses the question as to their being of Glacial or Post-glacial age. W. R. J.

Benton, E. R. The Richmond Boulder Trains. *Bull. Mus. Harvard Coll.* vol. v. pp. 17-44, plate (maps). [1878.]

Dr. M. E. Wadsworth gives the microscopic characters of some chloritic schists and sandstones.

Blake, Dr. J. Origin of the Cascades and of the submerged Forests on the Columbia River. *Proc. Amer. Assoc.* vol. xxiii. [1875.]

——. On the Results of Glacial Action at the head of Johnson's Pass, in the Sierras. *Proc. Calif. Ac. Sci.* vol. vi. pp. 170-175, plate. [1876.]

At the head of the S. fork of the American River there is evidence of glacial action, which is described, with a plan showing the deposition of moraine matter at the head of Johnson's Pass. R. B. N.

——. Sonorous Sand. *West Rev. Sci. Ind.* vol. ii. p. 28. [1878.]

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Boyd, E. F. Remarks on the Coal Measures and Oil-produce of the United States. *Trans. N. Engl. Inst. Eng.* vol. xxv. pp. 145-167, pls. xliii.-xlix. [1876.]

A general account of the geology of the States, and notes on the coal and oil districts. Three of the plates are geological maps.

Broadhead, G. C. Missouri Ores of the Carboniferous Age. *West Rev. Sci. Ind.* vol. i. pp. 650-654. [1878.]

Describes deposits of limonite, hæmatite, and clay-ironstone.

— **Jackson County, Missouri.** A few notes on its Geology. *Western Rev. Sci. Ind.* (= *Kansas City Rev. &c.*), vol. ii. no. 4, pp. 204-210. [1878.]

The rocks are U. and M. Coal Measures, of which a general section is given, as well as details of some sections, the chief fossils being noted.

Burkart, Dr. Ueber den Silbererz-Bergbau an der Nordküste des Obern-Sees in Canada in Nord-America. [Silver Mine on Canadian Shore of L. Superior.] *Berg Geist*, no. 25, p. 161, no. 26, pp. 169, 170. [1874.]

Describes the Silver Island Mine, Thunder Cape.

Burmeister, Dr. H. Description Physique de la République Argentine d'après des Observations personnelles et étrangères. [Physical Description of Argentine Republic.] T. ii. *Buenos Ayres*, 1876.

Treats of the geology (noted in the GEOLOGICAL RECORD for 1876, p. 129) and of the general geographical features.

Callaway, Dr. C. On the Correlation of the Lower Helderberg Group of New York. *Geol. Mag.* dec. ii. vol. v. pp. 271-277; 3 woodcut-sections. [1878.]

The stratigraphical evidence shows that this group overlies the Water-lime group, and it is therefore not an extension of the underlying Niagara series. The fauna is more like that of the last than that of the British Ludlow. W. W.

Calvin, Prof. S. On some dark Shale recently discovered below the Devonian Limestones at Independence, Iowa, with notice of the Fossils at present known to be in it. *Amer. Journ.* ser. 3, vol. xv. pp. 460-462, and *Bull. U. S. Geol. Surv. Terr.* vol. iv. pp. 725-730. [1878.]

Describes a fossiliferous shale at the base of the Devonian (Chemung group). 14 species of Brachiopods are noticed, of which *Strophodonta variabilis*, *S. quadrata*, *Orthis infera*, *Rhynchonella ambigua*, and *Gypidula munda* are described as new. W. H. D.

Catlin, G. North American Indians. Vol. I. *London*, 1876.

Describes the loess-bluff of the Missouri.

Chamberlin, T. C. Geology of Wisconsin, Survey of 1875. Vol. II. Pp. 788, 37 pls. 8vo. And folio atlas of 14 maps. [1877.]

Part 1. Historical, with the Annual Reports for 1873-75, by J. A. Lapham and O. W. Wright. 2. The Geology of Wisconsin, by T. C. Chamberlin, in which rocks of Archæan, Silurian, Devonian, and Quaternary Age are recorded. 3. Geology of Central Wisconsin, by R. D. Irving, recording Archæan, L. Silurian, and Quaternary rocks; with

an appendix by **C. E. Wright** on the Microscopic Lithology. 4. On the geology and topography of the Lead Region, by **L. M. Strong**, who describes the formations of the area, and the ores and minerals occurring therein. **W. R. J.**

Chamberlin, Dr. T. C. Annual Report of Progress and Results of the Wisconsin Geological Survey for the year 1876. Pp. 40. 8vo. *Madison*, 1877.

——. Annual Report of the Wisconsin Geological Survey for the year 1877. Stratigraphical and Palæontological. Pp. 94. 8vo. *Madison*, 1878.

——. The Kettle Moraine of the great Lake District of North America. Pp. 20, pl. 8vo. *Paris*, 1878.

——. On the Extent and Significance of the Wisconsin Kettle Moraine. *Trans. Wisconsin Ac. Sci.* vol. iv. maps. [1878.]

The moraine stretches across Ohio, S. Michigan, and Minnesota. The lobes of the ice-sheet met S. of Wisconsin, enclosing a driftless area (see **Dana**, p. 157).

Chance, H. M. Hyner's Station Oil Well Section, included in a Detailed Section of Rocks between the Lower Productive Coal Measures (XIII.) and the Dark Slates of the Devonian (VIII.) in the vicinity of Renovo, Clinton Co., Pa. *Proc. Amer. Phil. Soc.* vol. xvii. no. 101, pp. 670–672. [1878.]

3460 feet of section shown.

Chrustschoff, K. v. Einiges über den Cerro del Mercado bei Durango in Mexiko. [Notes on Durango, Mexico.] 5 pls. 8vo. *Württemberg*, 1878.

Church, Prof. J. A. The Heat of the Comstock Mines. *Trans. Amer. Inst. Min. Eng.* pp. 32. [1878.]

Records the temperatures, describes the hot and cold belts, and concludes that the source of the heat is from chemical action going on in the erupted rocks, probably from the alteration of felspathic minerals (kaolinization), the heat being transmitted by gaseous currents.

W. W.

Colvin, Verplanck. Report on the Topographical Survey of the Adirondack Wilderness of New York for the year 1873. Pp. 306, maps and pls. 8vo. *Albany*, 1874.

Geology and mineralogy, p. 151, &c.

Cook, Prof. G. H. Annual Report of the Geological Survey of New Jersey for the year 1877. [1878.]

Prof. J. C. Smock on the Drift: Report on the Clay of Middlesex County, N. J.

Cook, Prof. G. H. Annual Report of the State Geologist of New Jersey for the year 1878. Pp. 132, geological map. 8vo. *Trenton, N.J.*, 1878.

Especially treats of the following subjects:—Glacial and Modified Drift, the Soils of New Jersey, Clay Deposits, Glass-Sand, Drainage, Water Supply, and Miscellaneous Laboratory Work (analyses).

W. R. J.

——. Report on the Clay Deposits of Woodbridge, South Amboy, and other places in New Jersey, together with their uses for fire-brick, pottery, &c. Pp. 382, 2 maps. 8vo. *Trenton, N.J.*, 1878.

Describes the position, character, and composition of the clays, and the modes of extraction.

Cope, E. D. Verbal communication on a New Locality of the Green River Shales containing Fishes, Insects, and Plants in a good state of preservation. *Pal. Bull.* no. 25, p. 1. 8vo. *Philadelphia*, 1877.

List of fish.

——. Pliocene Man. *Proc. Amer. Phil. Soc.* vol. xvii. no. 101, p. 292. [1878.]

Announces the discovery in Pliocene beds in Oregon of various vertebrates, with flakes, arrow- and spear-heads of obsidian, overlain by volcanic detritus.

W. H. D.

Crevaux, Dr. Jules. Voyage en Guyane. Note sur la géologie du Maroni, de la chaîne des Tumuc-humac et du Yary. [Geology of Guiana.] *Bull. Soc. Géogr. Paris*, Nov. [1878.]

Cutting, H. A. Report of the State Geologist and Curator of the State Cabinet for the years 1873–74. Pp. 759–782 of the Second Biennial Report of the State Board of Agriculture. 8vo. *Montpelier*, 1874.

——. Ditto. Pp. 661–686 of the Third Biennial Report for 1875–76. [1876.]

Da Costa, L. A. C. Estudo geologico da região de S Bartholomeu e da mina de ouro da Tapéra perto de Ouro-Preto. [Geology of the St. Bartholomew District and the Tapéra Gold Mine.] *Arch. Mus. Nac. Rio de Janeiro*, vol. iii. pp. 17–33. [1878.]

Describes the orography and hydrography of the district, and the gold mine of Tapéra.

Dale, T. N., Junr. A Contribution to the Palæontology of the Vicinity of Poughkeepsie [New York]. *Proc. Poughkeepsie Ac. Nat. Sci.* vol. ii. 2 pp. [1878.]

Notes discovery of Trenton fossils.

Dana, Dr. J. D. On the Driftless Interior of North America. *Amer. Journ.* ser. 3, vol. xv. pp. 250–255; 2 page cuts. [1878.]

Reproduces parts of two charts showing lines of equal winter- and annual precipitation referred to in a former paper when accounting for the absence of drift, on the ground of the dryness of the climate in connection with the summer heat. W. R. J.

Darwin, C. Geologische Beobachtungen über Süd-America. Translated by V. Carus. 5 pls., 2 maps. 8vo. *Stuttgart*, 1878.

Dawson, Dr. G. M. On the Superficial Geology of British Columbia. *Quart. Journ. Geol. Soc.* vol. xxxiv. pp. 89–123, pl. 5 (map, not geol.). [1878.]

Striation from N. to S. to a height of 3000 feet; Boulder Clay with water-worn and glaciated stones to 5000 feet; modified drift, sand, clay, &c. with marine shells to 3000 feet; shore-lines and terraces to 5270 feet. W. H. D.

——. Travelling Notes on the Surface Geology of the Pacific Slope. *Canad. Nat. n. s.* vol. viii. pp. 389–399. [1878.]

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——. Erratics at High Levels in North-western America.—Barriers to a great Ice-sheet. *Geol. Mag.* dec. ii. vol. v. pp. 209–212. [1878.]

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The additional matter consists in (1) subdivision of the Post-pliocene, (2) notes on the Trias and Permo-Carboniferous rocks and fossils (several new sp.), (3) on the Devonian Flora, and (4) on the complicated Silurian and Cambrian rocks. W. H. D.

——. Supplement to the Second Edition of Acadian Geology. . . . Pp. 102, geol. map. 8vo. *London*, 1878.

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Day, F. H. On the Fauna of the Niagara and Upper Silurian Rocks of Milwaukee County, Wisconsin. *Trans. Wisconsin Ac. Sci.* vol. iv. [1878.]

Delafontaine, —. Sur les limites des époques crétacée et tertiaire dans les Montagnes Rocheuses. [Boundary between Cretaceous and Tertiary in the Rocky Mountains.] *Arch. Sci. Phys. Nat.* t. lvii. p. 206. [1876.]

Del Mar, Alex. Report on the Mines of the Comstock Lode. *Washington*, 1876.

Derby, Prof. O. A. Contribuições para a Geologia da Região do Baixo Amazonas. [Geological Notes on the Lower Amazons.] *Arch. Mus. Nac. Rio de Janeiro*, pp. 77-104. [1877.]

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—. A geologia da região diamantífera da Província do Parana no Brasil. [Geology of the Parana Diamond Region.] *Arch. Mus. Nac. Rio de Janeiro*, t. iii. pp. 89-98. [1878.]

—. A bacia cretacea da bahia de Todos os Santos. [Cretaceous Rocks of Todos Santos Bay.] *Arch. Mus. Nac. Rio de Janeiro*, t. iii. pp. 135-158. [1878.]

Dewees, John H. Geological Survey of Pennsylvania. Report of Progress in the Juniata District on the Fossil Iron ore beds of Middle Pennsylvania, with a Report of the Aughwick Valley and East Top District by **C. A. Ashburner**. *2nd Geol. Survey of Pennsylvania*. Pp. 305. 7 geol. maps, 19 sections. 8vo. *Harrisburg, Pa.* [1878.] Price 2-55 dollars.

Prof. J. P. Lesley gives a sketch of iron-bearing formations, of which the principal are the Clinton and Marcellus groups. **Mr. Dewees** gives full details. **Mr. Ashburner** describes Silurian, Devonian, and Carboniferous rocks, with a detailed section and maps. W. H. D.

Dupré, L., Jun. Estudo geologico e mineralogico do região E. de Ouro-Breto, comprehendida entre aquella Adade, a povoação do Taquaral e o rio do Carmo. [Geology and Mineralogy of the District E. of Ouro-Preto.] *Arch. Mus. Nac. Rio de Janeiro*, vol. iii. pp. 11-16. [1878.]

Describes the geology, and discusses the possibility of profitably working the gold mines of Ouro-Preto.

Edmunds, E. S. Geology of Lagrange County, Indiana. *Kansas City Rev. Sci. Ind. (Western Rev. &c.)* vol. ii. no. 8, pp. 500-508. [1878.]

Wholly Quaternary, Boulder Drift over 100 feet, but Devonian rocks touched by boring.

Endlich, Dr. F. M. On some striking Products of Erosion in Colorado. *Bull. U.S. Geol. Surv. Terr.* vol. iv. no. 4, pp. 831-864. [1878.]

Glances at the modes of chemical and mechanical erosion, and describes the forms left by the erosion of Cretaceous, Tertiary, and

Volcanic rocks under the heads of Monuments, Statuesque, Mural, and Architectural Forms, Caves, Arches, and Isolated Forms. W. H. D.

Evans, T. R. Method of Working the Dade Coal Mines. *Metall. Rev.* vol. ii. p. 68; abstract in *Proc. Inst. Civ. Eng.* t. lvi. pp. 346, 347. [1878.]

The mines are in Georgia; the Sandstone below the seam often rises up into bosses or "squeezeies."

Feistmantel, Dr. O. [Rhætic Formation in the Argentine Republic.] *N. Jahrb.* 1877, pp. 178–181.

Ford, John. On a Stone Axe. *Proc. Ac. Nat. Sci. Philadel.* ser. 3. vol. vii. pp. 305, 306. [1878.]

Note on a celt and fossil shells from the bluffs of the Mississippi, Alton, Illinois.

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Gilbert, G. K. The Recency of certain Volcanoes of the Western United States. *Proc. Amer. Assoc.* vol. xxiii. [1875.]

——. Natural Erosion by Sand in the Western Territories. *Proc. Amer. Assoc.* vol. xxiii. [1875.]

——. Report on the Geology of the Henry Mountains. (U.S. Geographical and Geological Survey of the Rocky Mountain Region.) 4to. *Washington*. Pp. viii, 160; 5 pls. (maps), 22 woodcut-plates (views, &c.). [Though dated 1877, not really issued until 1878, or 1879?]]

The Cretaceous Rocks, in 7 groups of sandstones and shales, are 3500 feet thick; the Jura-Trias, in 4 groups of shales, sandstones, and clay, 2930 feet; the Carboniferous is represented by a few hundred feet of sandstone. All these beds have the same dip, but there were intervals of deposition, resulting in uneven surfaces. The beds have been thrown into great folds and worn into cliffs and plateaus. The special type of structure of the Henry Mountains is named the "*Laccolite*" (*λάκκος*, cistern), and is caused by lava not having broken through all the beds, but having stopped short of the surface and caused an arching of the beds above; these laccolites lie in clusters marked by a mountain. A detailed description of the five mountains of the group is given, the chief laccolites and arches being noticed separately. The "natural history of the Laccolite" is treated in pp. 51–60. **Capt. C. E. Dutton** contributes a "Report on the Lithologic Characters of the Henry Mountain Intrusives," pp. 61–65, the rocks being described as trachytes of various kinds. The cause of the formation of laccolites rather than volcanoes is concluded to be the relative densities of the lavas and the invaded beds, tables of specific gravities of both sets of rocks being given. Land sculpture is treated in detail, pp. 99–150

and systematically under many headings of processes, conditions, and results. W. W.

Gilbert, G. K. The Ancient Outlet of the Great Salt Lake. *Amer. Journ.* ser. 3, vol. xv. pp. 256-259. [1878.]

The outlet was found to be at Red Rock Pass, at the N. end of Cache Valley, Idaho.

Gilpin, E. Notes on some Recent Discoveries of Copper-ore in Nova Scotia. *Quart. Journ. Geol. Soc.* vol. xxxiii. pp. 749-753, map (p. 750). [1877.]

The ores occur in a belt of faults in L. and U. Silurian, with granite. Analyses given, one by Dr. How.

——. The Iron Ores of Nova Scotia. *Trans. N. Engl. Inst. Eng.* vol. xxvi. pp. 71-89. [1877.]

Gives a table of the age and description of the ores. Describes the ores under the headings, Titaniferous Iron Ore, Bloomfield Bog Ore, Pictou County Iron Ores, Cape Breton. Gives a table of localities. Notes the limestones, with analyses. Many analyses of ores given.

W. W.

——. Notes on Specimens of Iron Ores, &c. collected in Pictou for the Philadelphia Exhibition. *Trans. Nov. Scot. Inst.* vol. iv. p. 137. [1877.]

Groddeck, — v. Ueber das Vorkommen von Gold-, Kupfer- und Blei-erzen in der Provinz Rio Grande do Sul in Brasilien. [Gold, Copper, and Lead Ore in Brazil.] *Berg-hütt. Zeitung*, 1877, no. 49, p. 422.

Hague, Arnold, and S. F. Emmons. Report of the Geological Exploration of the Fortieth Parallel. . . . Vol. ii. Descriptive Geology. Pp. xiii, 890; 25 plates, views. 4to. *Washington*, 1877.

Chaps. 1. Rocky Mountains, treating of Archæan to Tertiary and of Volcanic rocks; ii. Green River Basin, chiefly Tertiary and Mesozoic; iii. Utah Basin, from Archæan rocks upward; iv. Nevada Plateau, various formations and Volcanic rocks; v. Nevada Basin, the like, with hot springs, tufa-alkaline deposits. Throughout there are many chemical analyses of rocks, waters, and salts, chiefly by **W. Woodward**, **B. E. Brewster**, **Prof. T. M. Drown**, and **Prof. O. D. Allen**, with details of sections, and short lists of fossils. A generalized section of the sedimentary formations is given on p. 855.

W. W.

Hall, C. E. Catalogue of the Geological Museum. Part I. Collections of Rock Specimens. No. 1-4264. *2nd Geol. Surv. Pennsylvania* Report O. Pp. 217, map. 8vo. *Harrisburg*, 1878.

Hall, Prof. James. On the Limestones of the Falls of the Ohio. *Palæontology of New York*, vol. v. part 2. (Advance sheets, pp. 16.) 4to. [1878.]

Describes Niagara, U. Helderberg, and Hamilton Beds and Genesee Shale.

Hall, Prof. James. Note upon the History and Value of the Term Hudson River Group in American Geological Nomenclature. *Proc. Amer. Assoc.* vol. xxvi. [1878.]

Harrington, B. J. Exposition Universelle de 1878, à Paris. Catalogue des Minéraux, Roches et Fossiles du Canada, avec notes descriptives et explicatives. [Minerals, Rocks, and Fossils of Canada in Paris Exhibition.] Pp. 134. 8vo. London, 1878.

Hayden, Dr. F. V. Tenth Annual Report of the United States Geological and Geographical Survey of the Territories, embracing Colorado and parts of Adjacent Territories, being a Report of Progress of the Exploration for the Year 1876. Pp. xxix, 546; 79 plates, 3 maps. 8vo. Washington, 1878.

Contains Dr. Hayden's letter summarizing the work of 1876, the details of which follow.

Dr. C. A. White reports (pp. 1-60) on the geology of a portion of North-western Colorado, between the Yampu and White Rivers and the meridians of 107° 25' and 107° 50'. Describes the surface features, the rocks, their displacements and denudation, and the economic resources of the district. Plates: i. Table of Beds; ii. Map.

Dr. F. M. Endlich reports (pp. 61-131) on the geology of the White River District. Describes the present and previous physical features, the geological structure, and metalliferous deposits (gold, silver, lead, copper, zinc, iron, and coal). Pls.: iii.-v., sections; vi., vii., sketches of rocks.

Dr. F. M. Endlich next gives (pp. 133-159) a Catalogue of Minerals found in Colorado, quoting analyses from recent works, of which a list is given.

Dr. A. C. Peale reports (pp. 161-185) on the Grand River District. Pls.: viii., xi., maps; ix., xii., sections; x., views (showing geology).

W. H. Holmes reports (pp. 187-195) on the Sierra Abajo and West San Miguel Mountains. Pls. xiii.-xvi., views (showing geology).

Dr. F. M. Endlich reports on the Erupted Rocks of Colorado (pp. 197-272), classifying them and indicating their various ages and modes of origin. Coins the term *symmorphic* for eruptive rocks altered in composition by absorption of the sedimentary beds traversed.

Prof. L. Lesquereux remarks (pp. 479-520) on specimens of Cretaceous and Tertiary Plants secured in 1877, giving a list of all N. American species, with references to the literature thereof.

Of the large maps, 1 is geological, 2 economic, 3 drainage; they are reproductions of nos. 2, 3, and 4 of the Atlas noticed in the *Geological Record* for 1877, p. 335, where a list of the formations is given.

W. H. D.

—. Summary of Field Work of the United States Geological and Geographical Survey of the Territories for the Season of 1877. *Amer. Journ.* ser. 3, vol. xv. pp. 56-60. [1878.]

1879.

■

Dr. Peale in the Green River division found Granite, Basalt (late Tertiary), Silurian, Carboniferous, and other formations up to late Tertiary. Dr. Endlich in Sweetwater division found much Tertiary and all the older rocks, also mud springs. Prof. St. John in the Teton division found rocks from L. Silurian to late Tertiary, with igneous rocks overlying the latest. Dr. White proved the identity of the Lignitic E. of the Rocky Mountains with the Fort Union and Laramie series, and that sedimentation was continuous from the Dakota to the Bridger series. W. H. D.

Hayden, Dr. F. V. Preliminary Report of the Field Work of the U.S. Geological and Geographical Survey of the Territories for the Season of 1878. Pp. 29. 8vo. *Washington*, 1878.

The Appendix consists of reprints of articles by Dr. Hayden from *Amer. Journ.* Some remarks in regard to the Period of Elevation of those Ranges of the Rocky Mountains near the source of the Missouri River and its Tributaries (1862). Remarks on the Geological Formations along the Eastern Margins of the Rocky Mountains (1868). The Primordial Sandstone of the Rocky Mountains in the North-western Territories. . . . (1862). Sketch of the Geology of the Country about the Head-waters of the Missouri and Yellowstone Rivers (1861).

W. W.

Henrich, C. [Ore-beds of Leadville, Colorado.] *Eng. Min. Journ.* vol. xxvii. pp. 125, 143, 160. [1878.]

Henry, H. Note sur le Pays de l'Huile de l'Amérique du Nord. [Oil Grounds of N. America.] *Bull. Soc. Indust. min. St. Etienne*, sér. 2, t. vii. p. 135. [1878.]

——. Note sur les bassins anthraxifères de la Pennsylvania (États Unis). [Anthracite Basins of Pennsylvania.] *Bull. Soc. Indust. min. St. Etienne*, sér. 2, t. vii. p. 595. [1878.]

Hicks, Prof. L. E. Discovery of the Cleveland Shale in Delaware County, Ohio. *Amer. Journ.* ser. 3, vol. xvi. pp. 70, 71. [1878.]

——. The Waverley Group in Central Ohio. *Amer. Journ.* ser. 3, vol. xvi. pp. 216–224. [1878.]

Describes the series (descending):—Licking Shales, Black Hand Conglomerate and Granville Beds, Raccoon Shales, Sunbury Black Slate, Sunbury Calcareous Sandrock. These cannot be exactly correlated with the Cleveland series (U. Devonian or L. Carboniferous).

W. H. D.

Hilgard, Prof. E. W., and Dr. F. V. Hopkins. Reports upon the Specimens obtained from borings made in 1874 between the Mississippi River and Lake Borgue, at the site proposed for an outlet for Flood Waters. 3 pls. of fossils, map, and sections. 8vo. *Washington*, 1878.

From the Supplement to the Report of the Commissioner of Engineers

on the Reclamation of the Alluvial Basin of the Mississippi. Gives sections, with lists of fossils, of the alluvial deposits. The following species are probably new (Hilgard)—*Serpula fenestrata*, *Turbonilla undecimsulcata*, *Dentalium læve*, *D. sexangulare*, *Cardium æquilaterale*, and *C. inæquilaterale*.
W. H. D.

Hinde, G. J. *Arbusculites argentea*, Murray. *Geol. Mag.* dec. ii. vol. v. p. 378. [1878.]

Records this as associated with *Producti* at Arisaig, Nova Scotia.

——. Note on the Occurrence, near Toronto, of Boulders belonging to the Calciferous Formation. *Canad. Journ.* vol. xv. p. 644. [1878.]

Hitchcock, C. H. The Geology of New Hampshire. Vol. III. Part 3. Surface Geology. Part 4. Mineralogy and Lithology. Part 5. Economic Geology. Folio Atlas. 2 topographical and 2 geological maps. 8vo. *Concord*, 1878.

W. Upham and **C. H. Hitchcock** describe the Glacial Drift; **G. W. Hawes** the minerals and rocks (with 11 plates); **C. H. Hitchcock** the economical minerals.
W. H. D.

——. Glacial Markings among the White Mountains. *Appalachia*, vol. i. no. 4, p. 243. [1878.]

Höfer, Prof. H. Die Petroleumindustrie Nord-Amerikas in geschichtlicher, wirthschaftlicher, geologischer und technischer Hinsicht. [Petroleum Industry of N. America, Historical, Statistical, Geological, and Technical Account.] Pp. 166. 8vo. *Vienna*, 1876 or 1877.

Part 3 deals with the geology of petroleum, which in N. America is found only in Palæozoic rocks, from the Trenton to the Carboniferous. Its geographical range, mode of occurrence, and origin are described.

W. H. D.

——. Bericht über die Köhlen- und Eisenerzlagertätten Nord Amerikas. [Coal and Iron-ore Deposits of N. America.] *Vienna*, 1878.

Honeyman, Dr. D. Nova Scotian Geology, Superficial. *Trans. Nov. Scot. Inst.* vol. iv. p. 109. [1877.]

——. Pre-Carboniferous Formations of Annapolis and King's Counties. *Trans. Nov. Scot. Inst. Nat. Sci.* vol. iv. pt. iv. p. 337. [1878.]

——. Nova Scotian Geology, Pre-Carboniferous, Lower Carboniferous, &c. Retrospect to 1859. *Trans. Nov. Scot. Inst.* vol. iv. pt. iv. p. 439. [1878.]

In these two papers Dr. Dawson's conclusions are criticized. Answered by him, see above, p. 137.

Hotchkiss, Jed. Virginia: a Geographical and Political Summary, embracing a Description of the State, its Geology, Soil, Minerals, Climate, &c. Pp. iv, 319; 4 maps. 8vo. *Richmond*, 1876.

Hough, Dr. F. B. The Elephant's Tusk lately found near Copenhagen [Lewis Co., N. Y.]. "*The Watchword.*" *Lowville, N. Y.*, 1877.

From a freshwater deposit in a swamp.

Hovey, H. C. Discoveries in Western Caves. *Amer. Journ.* ser. 3, vol. xvi. pp. 465-471. [1878.]

Notes collected during underground explorations in Indiana and Kentucky.

Hunt, Dr. T. S. Special Report on the Trap Dykes and Azoic Rocks of South-eastern Pennsylvania. Part I. Historical Introduction. *Second Geological Survey of Pennsylvania*. Pp. xxi, 256. 8vo. *Harrisburg*, 1878. Price 48 cents.

Chap. i. enunciates H. D. Rogers's views on the Hypozoic and Azoic systems of Pennsylvania, published in 1858. The rest of the work deals with the history of American Pre-Silurian Geology, chap. iv. being on the Cambrian rocks of Europe (Wales, Scandinavia, Russia, Bohemia) and America. The controversies as to stratigraphical position, &c. of the various metamorphic groups are summarized, and many references to the literature of the subject given. Some original matter, including analyses of petrosilex by G. Broome, is inserted. W. H. D.

———. The older Rocks of Western North America. *Proc. Amer. Assoc.* vol. xxvi. [1878.]

———. On the Geology of the Eozoic Rocks of North America. Abstract *Proc. Boston Soc. Nat. Hist.* vol. xix. pp. 275-278. [1878.]

Huntington, —. Geology of the Region about the Head Waters of the Androscoggin River, Maine. *Proc. Amer. Assoc.* vol. xxvi. [1878.]

Irving, Prof. R. D. Origin of the Driftless Region of the North-west. *Amer. Journ.* ser. 3, vol. xv. pp. 313, 314. [1878.]

States points of agreement with and of dissent from Prof. Winchell (see GEOLOGICAL RECORD for 1877, p. 132).

Keller, Franz. The Amazon and the Madeira Rivers, Sketches and Descriptions from the Notebook of an Explorer. 68 pls. 4to. 1874. Includes geological matter.

Kerr, Prof. W. C. Report of the Geological Survey of North Carolina Vol. i. pp. 120, 8 pls. (fossils), geol. map. [1875.] Imperfectly noticed in the GEOLOGICAL RECORD for 1875, p. 391.

Contains 4 Appendices:—A. T. A. Conrad. Descriptions of new

genera and species of Fossil Shells of North Carolina in the State Cabinet at Raleigh, pp. 1–28; 4 pls. Deals with Cretaceous and Eocene fossils. The genera *Trigonarca*, *Nemodon*, *Plagiarca*, *Polynema*, *Inoperna*, *Elea*, *Brachymerus*, *Pachythærus*, *Arene*, *Trachycardium*, *Cyclothyris*, *Æne*, *Liothyris*, *Cymella* (Meek), *Diploconcha*, *Callonema*, *Leptothyris*, *Pterothyris*, and *Liopistha* (Meek) are founded.

B. Prof. E. D. Cope. Synopsis of the Fossil Vertebrata of North Carolina, pp. 29–52, pls. 5–8.

C, D. Dr. F. A. Genth. Mineralogy of North Carolina, pp. 53–90. Corundum, its Alterations and Associated Minerals, pp. 91–97. (See *Proc. Amer. Phil. Soc.* for 1873.)

Rev. C. D. Smith. Geology of Western North Carolina, p. 98.

W. H. D.

Killebrew, —. Geology and Topography of the Oil Region of Tennessee, with some account of the oil springs and wells. *Proc. Amer. Assoc.* vol. xxvi. [1878.]

King, Clarence. Report of the Geological Exploration of the Fortieth Parallel. Vol. i. Systematic Geology. Pp. xi, 803; 27 plates of views, 1 of Profiles of Ranges, 12 of Analytical Geological Maps, 13 Tables of Chemical Analyses (of Rocks). 4to. Washington, 1878.

Describes the various formations upwards from the Archæan, discussing the correlation of the Archæan rocks, the genesis of granite and schists, Pre-Cambrian topography, Tertiary Lakes, extinct Glaciers and Cañons, Glacial Lakes (Bonneville and Lahoutan). The Tertiary Volcanic Rocks are described in detail, in 5 sections, their correlation and succession being discussed, as well as the genesis and classification of volcanic rocks. The orography of the region is described under the heads Archæan, Post-Carboniferous, Post-Jurassic, Post-Cretaceous, and Tertiary.

Short lists of fossils, chemical analyses, and accounts of sections occur throughout.

Amongst the maps are the following:—Glaciers of the Ice Age, Lakes of the Glacial Period, and Exposures of successive Orographic Disturbances.

W. W.

Kloos, J. H. Geognostische und geographische Beobachtungen im Staate Minnesota. *Inaugural Dissertation.* Pp. 58. Berlin, 1877.

—. Geognostische Beobachtungen am Columbia-Flusse. [Geology of R. Columbia.] *Min. petr. Mitth.* Bd. i. p. 389. [1878.]

Latham, Richard. The Coal Fields of America. *Trans. S. Staff. Inst. Eng.* n. ser. vol. ii. pp. 78–81. [1876.]

Notes coal seams, and gives analyses of coal, iron-ores, and limestone.

Le Conte, Prof. J. Address before the American Association for the Advancement of Science at Detroit, Michigan, August 13, 1875. *Proc. Amer. Assoc.* vol. xxiv. pp. 1–18. [1876.]

Le Conte, Prof. J. On some of the Ancient Glaciers of the Sierra.

Proc. Calif. Ac. Sci. vol. vi. pp. 38-48, map. [1876.]

Part II. Some of the tributaries of Lake Valley Glacier. Evidences of the existence of the Great Lake Valley Glacier. Origin of Lake Tahoe. Passage of Slate into Granite. Glacial Deltas. Parallel Moraine. Glacial Erosion. R. B. N.

Lesley, Prof. J. P. On Terrace Levels in Pennsylvania. *Amer.*

Journ. ser. 3, vol. xvi. pp. 68, 69. [1878.]

Little, Dr. George. Catalogue of Ores, Rocks, and Woods selected from the Geological Survey Collection of the State of Georgia, U. S. A., with a Description of the Geological Formations. Collection sent to the Paris Exhibition of 1878. Pp. 16. 8vo. *Atlanta*, 1878.

The L. and U. Potsdam, Quebec, and Cincinnati groups are regarded as L. Silurian, and their lithological characters are described.

Louis, H. On the Copper Deposit at New Annan, Nova Scotia. *R.*

Sch. Mines Mag. vol. ii. pp. 66-69. [1878.]

Describes the general structure of the district (Silurian and Carboniferous rocks), and the copper deposits in the latter, giving analysis of a sort of covellite, Cu_2S_4 . W. H. D.

McCauley, Lieut. C. A. H. Report on the San Juan region. In Appendix SS of the *Annual Report of the Chief of Engineers* for 1878.

Extended account of mines, agriculture, &c., with notes on the geology, erosion, and river terraces.

McCracken, S. B. The State of Michigan, embracing Sketches of its History, Position, Resources, and Industries. Pp. 136, 5 pls. and map. 8vo. *Lansing*, 1876.

Macfarlan, James. Discovery of Rock Salt at Wyoming, in Western New York. *Syracuse Journal*, June 29, and *Amer. Journ.* ser. 3, vol. xvi. p. 144. [1878.]

Describes a boring of 1562 feet through Genesee, Hamilton, Marcellus, Upper Helderberg, Waterlime, and Onondaga Beds to Niagara Limestone. W. H. D.

McGee, W. J. Relative Positions of the Forest Bed and associated Drift Formations in North-eastern Iowa. *Amer. Journ.* ser. 3, vol. xv. pp. 339-341. [1878.]

The Forest Bed is overlain by Glacial Drift, and is of interglacial age.

- Marsh, Prof. O. C.** Section of the Earth's Crust to illustrate Vertebrate Life in America. *Amer. Journ.* ser. 3, vol. xvi. pl. iv. [1878.] Vertical section showing the Vertebrata characterizing each division.
- Meunier, St.** Sur le mode de formation de la brèche météorique de Saint Cathérine (Brésil). [Meteoric Breccia of St. Catherine, Brazil.] *Compt. Rend.* t. lxxxvi. pp. 943–946. [1878.]
- Miller, S. A.** North American Mesozoic and Cænozoic Geology and Palæontology, or an Abridged History of our knowledge of the Triassic, Jurassic, Cretaceous, and Tertiary Formations of this Continent. Pp. 338. 8vo. *Cincinnati*, 1878.
Reprint from *Journ. Cincinn. Soc. Nat. Hist.* Critical bibliography, classified.
- . Remarks upon the Kaskaskia Group, and Descriptions of New Species of Fossils from Pulaski County, Kentucky. Pp. 12, plate. [1878 ?]
- Morgan, Alfred.** Sketch of the Origin and Progress of the United States Geological and Geographical Survey of the Territories. *Proc. Lit. Phil. Soc. Liverpool*, no. xxxi. pp. 357–365. [1877.]
- Moseley, H. N.** Oregon, its Resources, Climate, People and Productions. 12mo. *London*, 1878.
Notes on soils and minerals, pp. 23–27, 31–33.
- Mudge, B. F.** Geology of Kansas. Pp. 107–127 of Fourth Annual Report of the State Board of Agriculture to the Legislature of the State of Kansas for the year ending Nov. 30th, 1875. *Topeka*, 1875.
- . Geology of Kansas. Pp. 46–88 of First Biennial Report of the State Board of Agriculture to the Legislature of the State of Kansas for the years 1877–78. Pp. 632. 8vo. *Topeka*. Map, 2 sections, 6 pls. [And 2nd edition.] 1878.
Describes the Drift, Tertiary, Cretaceous (Niobrara, Benton, and Dakota), Permian, and Carboniferous rocks, gypsum and salt deposits, lead and zinc ores, and coals. [From *Amer. Journ.* notice.] W. H. D.
- . The Fossil Insects of Colorado. *Kansas City Rev. Sci. Ind.* vol. ii. p. 438. [1878.]
Note on the place of their occurrence and their semitropical character.
- . Fossil Leaves in Kansas. *West. Rev. Sci. Ind.* vol. i. p. 655. [1878.]
Describes a red L. Cretaceous sandstone, containing abundance of dicotyledonous plants, palms, &c.

Mudge, B. J. The Connection of the Fossil Forests of the Dakota Groups in Kansas with the Fossil Forests of Greenland. *Trans. Kansas Ac. Sci.* vol. vi. [1878.]

Muir, —. The Formation of Mountains in the Sierra Nevada. *Proc. Amer. Assoc.* vol. xxiii. [1875.]

Murray, Alexander. The Geological Survey of Newfoundland. *Report of Progress for the year 1875.* Pp. 17. 8vo. *St. John's*, 1875. Ed. 2. Pp. 22. 8vo. *St. John's*, 1876.

——. Report of the Geological Survey of Newfoundland for 1877. Pp. 14. 8vo. *St. John's, N.F.*, 1878.

——. Geography and Resources of Newfoundland. *Journ. R. Geogr. Soc.* vol. xlvii. p. 267. [1878.]

Murray, Alexander, and J. P. Howley. Geological Survey of Newfoundland. *Report of Progress for the year 1876.* Pp. 63. 8vo. *St. John's*, 1877.

General Report, to p. 20. Report of Geological Exploration on the Gambo and Gander Rivers, by J. P. Howley, p. 25, &c. (Geological Description, 49–58; Rocks of the South-west Gander River, 58–63.)

W. W.

Newberry, Prof. J. S. Report of the Geological Survey of Ohio. Vol. 3. Geology and Palæontology. Part i. Geology. 8vo. *Columbus*. Pp. 958; pls. 20 (maps and sections), cuts. [1878.]

A review of the geological structure of Ohio and descriptions of the geology of 35 counties of the State by J. S. Newberry, J. J. Stevenson, M. C. Read, A. W. Wheat, E. Orton, John Hussey, F. C. Hill, A. C. Lindemuth, J. T. Hodge, E. B. Andrews, and H. Herzer. W. R. J.

——. The Geological History of New York Island and Harbor. *Pop. Sci. Monthly*, vol. xiii. pp. 41–60. 8vo. *New York*, 1878.

Describes the condition of the district in the Laurentian, Cambrian, Silurian, Devonian, Carboniferous, Triassic, Cretaceous, and Glacial epochs. W. H. D.

——. [Remarks on the Classification of Geological Formations.] *Science News*, Dec. 1, 1878.

Places the Oriskany in the Devonian, the Portage Group in the Carboniferous, and the Lignitic in the Cretaceous. The Cincinnati Group includes the Trenton and Hudson River Beds. W. H. D.

Ochsenius, Carl. [Mastodon.] *N. Jahrb.* 1878, Heft ii. p. 191.

Records discovery of Mastodon bones on shore of R. Chillan, in Chile.

- Peale, Dr. A. C.** Ancient Outlet of Great Salt Lake. *Amer. Journ.* ser. 3, vol. xv. pp. 439-444. [1878.]
Points out errors in Gilbert's paper on the same subject (see above, p. 160). There are terraces above the Bonneville Beach. Portneuf Valley was probably the old outlet. W. H. D.
- Percival, J. G.** "Indurated Bitumen" in cavities of the Trap of the Connecticut Valley. *Amer. Journ.* ser. 3, vol. xvi. pp. 130-132. [1878.]
Extracts from his Report on the Geology of Connecticut 1842, referring to its occurrence and origin.
- Philippi, Dr. R. A.** Ueber die Versteinerungen der Tertiärformation Chiles. [Fossils of Chilian Tertiaries.] *Zeitschr. ges. Nat.* Folg. 3, Bd. iii. pp. 674-685. [1878.]
Review of the fauna and its European equivalents.
- Pissis, —.** El desierto de Atacama; su jeolojia, sus productos i minerales. [Geology, Products and Minerals of the Desert of Atacama.] *An. Univ. Chile*, 1877.
- Plant, John.** Wealden Fossils from Colombia, S. America. *Proc. Lit. Phil. Soc. Manch.* vol. 16, pp. 50, 51. [1877.]
Emeralds are worked (near Honda, on the Upper Magdalena) in metamorphic rocks; overlying them are fossiliferous beds containing Ammonites, and a Paludina-Limestone like that of Sussex and Purbeck. W. T.
- Platt, Franklin, and R. H. Sanders.** Section of the Palæozoic Rocks in Blair County. *Proc. Amer. Phil. Soc.* vol. xvii. no. 101, pp. 349-352. [1878.]
23348 feet in Coal Measures, Devonian, U. and L. Silurian.
- Platt, W. G.** Report of Progress in Indiana County—1877. *2nd Geological Survey of Pennsylvania.* Pp. 316, map. 8vo. Philadelphia, 1878. Price 80 cents.
- Posada, C. B.** Historia geológico-geográfica de la República oriental del Uruguay, relacionada con la Industria, la Agricultura, y la Ganaderia. [Geological History of Uruguay.] *La Democracia (Montevideo)*, ann. 4. [1875.]
- . Estudio Geológico de la Region Aurífera de Tacuarembó que comprende los Distritos de Yaguari, de los Corrales y de Cuñapirú. Pp. 26. 4to. [Gold Region of Tacuarembó, Uruguay.] (In Spanish and French.) Pp. 26. 4to. Paris, 1878.
- Poëpny, F.** Zur Genesis der Salzablagerungen, besonders jener in nordamerikanischen Westen. [Origin of Salt-beds, especially in N.W. America.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxvi. pp. 179-212. [1878.]

Entered by mistake as to date, and without notice, in the *GEOLOGICAL RECORD* for 1878, p. 202.

Glances at the geology and hydrography of the Utah and Bear Lake districts. Quotes analyses by **L. D. Gale** and **O. Loew** of the waters of Great Salt Lake, L. Sevier, and L. Owen, and indicates the mode of the formation of those lakes and that of European rock-salt beds.

W. H. D.

Powell, Prof. J. W. Report of Explorations in 1873 of the Colorado of the West and its Tributaries. Pp. 36. 8vo. *Washington*, 1874.

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W. H. D.

——. On the Discovery of Lower Silurian Fossils in Limestone associated with Hydromica Slates and on other Points in the Geology of Lehigh and Northampton Counties, Eastern Pennsylvania. *Amer. Journ.* ser. 3, vol. xv. pp. 261-269. [1878.]

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W. H. D.

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Rath, G. vom. [Summary of Dr. T. Wolf's Researches in Esmeraldas, Ecuador.] *Verh. nat. Ver. preuss. Rheinl. Jahrg.* xxxiv. pp. 227-234. [1877.]

Describes Tertiary, Quaternary, and Volcanic deposits.

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— Les Gisements de Mercure de Californie. [Deposits of Mercury in California.] *Ann. Mines*, sér. 7, t. xiv. pp. 384-429; *Bull. Soc. Min. France*, no. 6, pp. 98-104. [1878.]

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Part i. Geological Structure, pp. 9-15; Soils, 16-20; Palæozoic

Rock Series, 21, 22; Helderberg Group, 23-37, with analyses of limestones, &c.; Hamilton Group, 38-63, with analyses of dolomite; Black Shales of Ohio—Genesee Shales of New York, 64-68; Waverly Group, 69-101, with details of borings; Carboniferous Limestone, 102, 121, with analyses and details of borings; Coal Measures, 122-150, with details of borings and sections. *Appendices*: Ontonagon Mining District, 153-159, silica and copper; Slate Quarries of Huron Bay, 159-166. On Salt Manufacture, by Dr. S. S. Garrigues, 167, &c., with analyses. Part ii. was noted in the GEOLOGICAL RECORD for 1876, p. 290.

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1. Red Shales and Sandstones; 2. Variegated Conglomerate; 3. The Eruptive Rocks; 4. The Theory of Separate Basins.

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A. R. C. Selwyn: Introductory report. **G. M. Dawson**: Report on explorations in British Columbia, pp. 17-94; Report on a reconnaissance of Leech River, pp. 95-102; and Note on the Mines and Minerals of economic value of British Columbia, pp. 103-149. **J. F. Whiteaves**: Note on some Jurassic fossils from British Columbia, pp. 150-159 (*Pinna subcancellata*, *Grammatodon* (?) *Itasyoncoensis*, *Trigonia Dawsoni*, n. sp.). **J. Richardson**: Report on the Coal Fields of Nanaimo, Comox, Cowitchen, Burrard Inlet, and Looke, 160-192. **T. S. Hunt**: On the Goderich Salt Region and on Mr.

Attrill's Exploration, 193-243, analyses. **R. Bell**: Report on geological researches North of Lake Huron and East of Lake Superior, 193-220. **H. G. Vennor**: Report on surveys in the Counties of Renfrew, Pontiac, and Ottawa, with notes on Iron Ores, Apatite and Plumbago deposits of Ottawa County, 244-320; Report on the Slate Formations of the northern part of Charlotte County, New Brunswick, with a summary of geological observations in the south-eastern part of the same county, 321-350. **L. W. Bailey and R. W. Ellis**: Report on the Lower Carboniferous belt of Albert and Westmorland Counties, New Brunswick, including the Albert Shales, 351-401. **Hugh Fletcher**: Report on the geology of part of the Counties of Victoria, Cape Breton, and Richmond, Nova Scotia, 402-456. **S. H. Scudder**: Additions to the Tertiary Beds at Quesnel, British Columbia, n. sp. *Sciara deperdita*, *Sciomyza revelata*, *Euschistus antiquus*, *Lachnus Quesneli*, *Bothromicromus* (n. gen.) *Lachlani*, 457-464. **B. J. Harrington**: Notes on Miscellaneous Rocks and Minerals, 465-488. **C. Hoffman**, Chemical contributions to the geology of Canada, 489-512.
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Sewell, H. The Mineral Resources of Peru. *Min. Journ.* vol. xlviii. p. 139. [1878.]

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——. *Memoirs of the Geological Survey of Kentucky.* Vol. I. Pp. iv, 246, iv, 44, 31; map and 26 pls. 4to. *Cambridge*, 1876.

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F. Platt, description of Coal Fields. **J. Fulton**, on the Coking of Bituminous Coal. W. H. D.

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The beds are Drift, Eocene, Cretaceous, Carboniferous, Devonian, Silurian, and Cambrian, besides metamorphic and igneous rocks. Stratigraphical details are given, minerals, ores, coals, waters, &c. are noticed, with analyses. The map shows 8 divisions. W. W.

Stevenson, J. J. Report of the progress in the Fayette and Westmoreland District of the Bituminous Coalfields of Western Pennsylvania—1877. Pt. 2. The Ligonier Valley. Pp. x, 332, geological maps, one index map, 3 plates of sections and cuts. 8vo. Harrisburg, 1878. Price 1.40 dollars.

Divided into sections: Systematic Geology, Geology of the Townships, Economic Geology, and Structural Geology. Describes the Coal Measures and convergent anticlinals (some of Carboniferous age), the clay veins, &c., giving palæontological notes and lists of fossils.

W. H. D.

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—. The Upper Devonian Rocks of South-west Pennsylvania. *Amer. Journ.* ser. 3, vol. xv. pp. 423-430. [1878.]

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Stubel, Alfonso. Antigua erupcion volcánica en la vecindad de los Banos de Canquenes, situados en el valle del Cachapual al lado austral de esterio. (Traducido del alemán.) [Ancient Volcanic Eruption in the Cachapual Valley, South Coast: From the German.] *An. Univ. Chile* for 1877, plate. [1878.]

Sundt (Lorenzo). Extractos de las cartas (jeolojia) escritas a don Ignacio Domeyko. [Extracts from Domeyko's Geological Maps.] *An. Univ. Chile*, 1877.

Thorne, Dr. J. The Rosedale Coal Vein. *W. Rev. Sci. Ind.* (= *Kansas City Rev.*) vol. ii. no. 4, p. 210, see also p. 257. [1878.]
Notices the section of a well sunk for gas, 345 feet, with two beds of coal.

Todd, —. On the annual deposit of the Missouri River during the Post-Pliocene. *Proc. Amer. Assoc.* vol. xxvi. [1878.]

Torell, Otto. On the Causes of the Glacial Phenomena in the North-eastern Portion of North America. 8vo. *Stockholm*, 1878.

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Notes the fossils of a bed of calcareous sandstone of Miocene or Pliocene age, from fragments dredged up between Newfoundland and Cape Cod. W. H. D.

Vogdes, Lieut. A. W. Cretaceous and Tertiary of Charleston, S. C. *Charleston News and Courier*, April 9, and *Amer. Journ.* ser. 3, vol. xvi. pp. 69, 70. [1878.]

Artesian boring to 1870 feet, in Pliocene, Eocene, and Cretaceous beds.

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Gives an account of the distribution and microscopic characters of the intrusive rocks, diabase and melaphyre. Chalcodite and olivine are added to the minerals of the locality, and the alteration of the rocks and minerals pointed out. Gives a bibliography of the local geology and mineralogy. M. E. W.

— On the Granite of North Jay, Maine. *Proc. Boston Soc. Nat. Hist.* vol. xix. pp. 237, 238. [1878.]

Describes the microscopic characters and mineral constitution of the granite, and gives the result of measurements of the optical angle of the mica. M. E. W.

— Notes on the Petrography of Quincy and Rockport. *Proc. Boston Soc. Nat. Hist.* vol. xix. pp. 309-316. [1878.]

Describes the microscopic characters of the hornblendic and micaceous granites, diabases, and melaphyres of Rockport, and of the hornblendic

granite of Quincy. The rare mineral danalite occurred in minute crystals in both granites. Notes a trachylitic glass from Rockport, and the local characters of the boulders there. Shows that micaceous passes continuously into hornblende granite. M. E. W.

Wallace, S. J. On the "Geodes" of the Keokuk Formation and the Genus *Biopalla*. *Amer. Journ.* ser. 3, vol. xv. pp. 366-370. [1878.]

Thinks that the cavities were formed by the rotting-out of sponges, and the geodes formed in them from percolating water. The new genus *Biopalla* is made to include these geodes, and he makes the following new species:—*B. Keokuk*, *B. grandis*, *B. Wortheni*, *B. Woodmani*, *B. Hackeli*, *B. Hyatti*, *B. Alicei*, and *B. palmata*. W. R. J.

——. Memorandum of a fossil wood from the Keokuk Formation, Keokuk, Iowa. *Amer. Journ.* ser. 3, vol. xv. p. 396. [1878.] Occurred in limestone, with shells, fish-teeth, &c.

Warren, G. K. Valley of the Minnesota River and of the Mississippi River to the Junction of the Ohio, its origin considered. *Amer. Journ.* ser. 3, vol. xvi. pp. 417-431 (from the Report on Bridging the Mississippi River). [1878.]

The valley of each river has been formed since the deposition of the Glacial Drift. The loess deposits are later than the last Glacial Drift, and channels such as those at the Des Moines Rapids are more recent than the loess. W. R. J.

White, Dr. C. A. Palæontological Papers.—No. 7. On the Distribution of the Molluscan Species in the Laramie Group. *Bull. U. S. Geol. Surv. Terr.* vol. ix. no. 3, pp. 721-724. [1878.]

Gives a list of 21 species showing their geographical range (7 localities) in Colorado, Wyoming, and Montana. The Judith River beds are the earlier and the Evanston Coal-series the later part of the group.

W. H. D.

——. Palæontological Papers.—No. 8. Remarks upon the Laramie Group. *Bull. U. S. Geol. Surv. Terr.* vol. iv. no. 4, pp. 865-876. [1878.]

The Laramie group includes the Judith River, Fort Union Lignitic, Bitter Creek, Bear River, and Evanston series of Missouri, Colorado, Wyoming, Utah, &c. It is principally sandstone with sandy shales, of shallow brackish-water origin (not estuarine), with occasional freshwater beds due to rain-flooding. The geography of Western N. America is clearly traceable throughout the Secondary and Tertiary epochs; and the record being unbroken, the division between Cretaceous and Tertiary is conventional rather than natural. W. H. D.

White, —. On the Equivalency of the Coal Measures of the United States and Europe. *Proc. Amer. Assoc.* vol. xxiii. [1875.]

White, Prof. I. C. Report of Progress in the Beaver River District of the Bituminous Coal-fields of Western Pennsylvania. *2nd Geological Survey of Pennsylvania*. Pp. 338; 3 maps, 21 pls. (sections). 8vo. Harrisburg, Pa., 1878. Price 1.40 doll.

Describes the geological structure, coal-seams, fire-clays, mineral oil deposits, and Drifts of parts of Beaver, Butler, and Alleghany counties. **Prof. J. P. Leslie** prefaces the work and **Prof. L. Lesquereux** describes *Rhizomorpha sigillaria*, a fungus found on *Sigillaria* in cannel coal. An analysis by **Prof. Wuth** of lacustrine clay is given. W. H. D.

Whiteaves, J. F. On some Primordial Fossils from South-eastern Newfoundland. *Amer. Journ.* ser. 3, vol. xvi. pp. 224-226. [1878.]

Quotes stratigraphical remarks from Murray's Report for 1868, giving a short list of fossils, and describing the new species *Lingula Billingsiana* from pre-Menevian shales in Conception Bay. W. H. D.

Whitney, J. D. The Yosemite Guide Book. Ed. 2. Pp. 186; 4 maps. 16mo. Cambridge, 1874.

Willcox, J. Corundum in North Carolina. *Proc. Ac. Nat. Sci. Philadel.* p. 225. [1878.]

Winchell, Prof. N. H. [The Loess of Minnesota.] *6th Ann. Rep. Geol. Surv. Minnesota*, pp. 225, pl., 2 maps. [1878.]

Water Supply of Red River Valley, with analyses by **Prof. S. F. Peckham**. Geological notes on Wright County, N. Pacific R.R., Morrison, Ramsey, Rock, Pipestone, and Rice Counties. Chemistry by **S. F. Peckham**, with analyses of peats, waters, and rocks. Entomology. List of addenda to Museum, 1877. W. H. D.

—. The Economical Geology of the Region of Cheboygan and Old Mackinac, in the Counties of Presqu' Isle, Emmet, and Cheboygan. Pp. 103-107 of Twelfth Annual Report of the Secretary of the State Board of Agriculture of the State of Michigan, for the year 1873. Pp. 144. 8vo. Lansing. [1875.]

—. The Recession of the Falls of St. Anthony. *Quart. Journ. Geol. Soc.* vol. xxxiv. pp. 886-901. [1878.]

Describes the Drift near the Falls, the Gorge and the position, &c. of the Falls at various periods from 1680. Calculates the recession from Fort Snelling at the close of the Glacial period to the site of 1856 to have taken 6276 years. W. H. D.

—. Vegetable Remains in the Drift Deposits in the North-west. *Proc. Amer. Assoc.* for 1875, pp. 43-56. [1876.]

An account of the discovery of these remains in Lower Iowa, Illinois, Indiana, Ohio, and Minnesota. 1879.

Winchell, Prof. N. H. The Cretaceous in Minnesota. *Bull. Minn. Ac. Nat. Sci.* for 1877, p. 347. [1878.]

Wolf, Prof. T. [Loja, Ecuador.] *Verh. nat. Ver. preuss. Rheinl. Jg. xxxiii.* pp. 134-136. [1876.]

Notes on igneous and auriferous rocks.

Wolf, Dr. Theodor. Geognostische Mittheilungen aus Ecuador. *N. Jahrb.* 1878, Heft ii. pp. 113-167; with map and plate. [1878.]

A continuation (see GEOLOGICAL RECORD for 1875, p. 133). Describes Cotopaxi and its eruption on June 26, 1877. Deals with the geological structure of the district; the old lava-streams, the historical eruptions, and the last outbreak of the volcano. Describes an ascent on Sept. 9, 1877.

F. W. R.

——. [Cotopaxi.] *N. Jahrb.* 1878, Heft v. p. 508.
Note on an ascent of Cotopaxi on Jan. 15, 1875.

Wood, S. V., Junr. American "Surface Geology," and its Relation to British. With some Remarks on the Glacial conditions in Britain, especially in Reference to the "Great Ice Age" of Mr. James Geikie. *Geol. Mag.* dec. ii. vol. iv. pp. 481-496, 536-551, pl. xv. (map). [1877.] Vol. v. pp. 13-29, pl. i. [1878.]

Examines the leading facts of the surface geology of Ohio given by Newberry (see the GEOLOGICAL RECORD for 1874, p. 125). Compares the American Glacial and Post-Glacial formations with the English. The origin of the unstratified Glacial clay was owing to the agency of floe ice, which in winter "froze to the bank of morainic matter at the glacier's foot, and so carried it away in sheets and masses during the summer." Correlates the Glacial and Post-Glacial beds of the St. Lawrence Basin with those of Britain by parallel tables.

R. B. N.

The State of Wisconsin, embracing brief Sketches of its History, Position, Resources, Industries, and a Catalogue of its Exhibits at the Centennial at Philadelphia. Pp. 86, 84. 8vo. *Madison*, 1876.

Canadian Pacific Railway. Reports and Documents in reference to the Location of the Line and a Western Terminal Harbour, 1878. 8vo. *Ottawa*, 1878.

List of Reports and Maps of the United States Geographical Surveys west of the 100th Meridian. Pp. 36. 8vo. *Washington*, 1878.

Nova Scotia. Department of Mines. Report for the Year 1877. 8vo. *Halifax, N.S.*, 1878.

Nitrate and Guano Deposits in the Desert of Atacama. An account of the measures taken by the Government of Chili to facilitate the development thereof. (Published by Authority of the Government of Chile.) Pp. v, 75; map. 8vo. *London*, 1878.

Geology and Mineral Products, by A. Pissis, pp. 1-33. ii. Geology. The (Azoic, Palæozoic, Triassic, and Jurassic) rock formations are in parallel beds, and everywhere in the same order. There are also plutonic rocks. iii. Deposits of Nitrate of Soda. v. Origin of the Nitrates. This is due to the decomposition of felspathic rocks. vi. Probable Quantity of Nitrate. x. Borate of Soda and Lime. xi. Deposits of Metals. Assays and analyses of saltpetre are given.

Report by Don J. R. Martinez, pp. 31-37.

The Nitre-beds of the northern part of the Province of Atacama, by Dr. J. P. Sieveking, pp. 37-43.

On samples of Caliche, by I. Domeyko, pp. 43-45, with 2 analyses.

The map shows the deposits of salt, and the positions of mines of copper and silver. W. W.

See also :—

McCreath, A. S. Coals, &c., Pennsylvania : *post*, under PETROLOGY.

4. ARCTIC REGIONS.

Hall, C. F. Narrative of the Second Arctic Expedition made by C. F. Hall, his voyage to Repulse Bay, to King William's Land, and Residence among the Eskimos 1864-69. Edited by **J. E. Nourse**. With astronomical and geological appendices. Pp. 1, 644; 28 pls., 1 folding map. 4to. *Washington*.

Heer, O. Ueber das Alter der tertiären Ablagerungen der Arktischen Zone. [Age of Arctic Tertiaries.] *Das Ausland*, 24 Feb. (*Stuttgart*.)

Maintains the Miocene age of these beds against Gardner's proposal to call them Eocene.

Holland, N. Greenland

Jensen (2 papers)

Johnstrup

Kornerup, W. Coast

} Papers on Greenland, accidentally entered under Europe, pp. 69, 72, 73, 75.

Smith, Prof. J. L. Mémoire sur le fer natif du Groënland et sur la dolérite qui le renferme. [Native Iron of Greenland, and the Dolerite in which it occurs.] *Ann. Chim. Phys.*

Meddelelser om Grönland, udgivne af Commissionen for Lødelser af de geologiske og geographiske Undersøgelser i Grönland. Vol. I. Copenhagen.

SUPPLEMENT FOR 1874-1878.

Blake, Rev. J. F. The Geological Results of Arctic Exploration. (Sunday Lecture Society, 7 April.) Pp. 24; geol. map, and 2 woodcuts.

Treats chiefly of districts visited by the late English expedition, but also of other parts. Describes the rocks, Silurian to Cretaceous, and Miocene; Basalts, Meteorites, change of level, Arctic Climate, Ice-sheets, &c. W. T.

Daubrée, C. Sur les Roches avec fer nativ du Groënland. [Iron-bearing Rocks of Greenland.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 111-113. [1877.]

Thinks it probable that the iron, like its basaltic matrix, is of terrestrial origin.

Feilden, H. W. Notes on the Natural History in Sir G. Nares' "Narrative of a Voyage to the Polar Sea during 1875-6 in H.M. Ships 'Alert' and 'Discovery.'" 2 vols. 8vo. London, 1878.

The geology of various localities is described throughout. Vol. ii. Appendix x, pp. 327-345. Geology. On the Geological Structure of the Coasts of Grinnell Land and Hall Basin, by C. E. De Rance and H. W. Feilden. Describe Palæozoic and Tertiary beds, with lists of plants from the latter, and an analysis of coal by R. J. Moss. Notice the glaciation. W. W.

Feilden, Capt. H. W., and C. E. De Rance. Geology of the Coasts of Arctic Lands visited by the late British Expedition under Captain Sir George Nares, R.N., K.C.B., F.R.S. *Quart. Journ. Geol. Soc.* vol. xxxiv. pp. 556-567, pl. xxiv. (map). [1878.]

Describe Cape Isabella Gneiss (? Laurentian), Cape Rawson Beds (? Huronian), Silurian (U. and L.) limestone and conglomerates, Dana-Bay Beds (Devonian), Carboniferous Limestone, Lias, Jurassic, Cretaceous, and Miocene beds. Denudation by thaw, glaciation by stone-shod ice driven ashore by wind or tide, and raised beaches are also noted. W. H. D.

Jeffreys, Dr. J. G. The Post-Tertiary Fossils procured in the late Arctic Expedition; with Notes on some of the Recent or Living Mollusca from the same Expedition. *Rep. Brit. Assoc. for 1877, Sections*, p. 72. [1878.]

21 species found in mud-banks or raised sea beds up to 400 feet above the sea; all are still living in the Arctic seas.

Johnstrup, F. Giesecke's Mineralogiske Rejse i Grønland. [Giesecke's Mineralogical Travels in Greenland.] Pp. xxvii, 372; 3 maps. 8vo. Copenhagen, 1878.

Gives a notice of Giesecke and his works. The account of his travels in Greenland, in the form of a journal, is from a MS. in K. Grønlandske Handels Archiv, dating from 1806 to 1813, and takes up pp. 1-332. His 'Mineralogical Geology of Greenland,' reprinted from the 'Edinburgh Encyclopædia' of 1816, pp. 333-347. W. W.

Schlüter, Dr. C. [Brick-red Cretaceous Rock from Greenland.] *Verh. nat. Ver. preuss. Rheinl. Jahrg. xxxi. Sitz. pp. 22, 30.* [1874.]

Thomson, Sir William. Coal Formation in the Arctic Regions. *Coll. Guard.* vol. xxxiii. pt. 1, p. 363. [1877.]

Attributes the greater heat at poles to a hotter sun.

Wills, T. On the Arctic Coal brought home by the late Expedition.

Rep. Brit. Assoc. for 1877, Sections, pp. 53, 54. [1878.]

Occurs on the W. side of Robeson Channel, lat. $81^{\circ} 44'$; the seam is 25 feet or more thick and overlain by shale containing Miocene plants. The coal is good, bituminous, and like that of the English Coal Fields. Analysis shows that it contains 77 p. c. of carbon, $6\frac{1}{4}$ p. c. of ash.

W. T.

Woodward, Dr. H. Notes on some Arctic Fossils from Beechey Island. *Geol. Mag.* dec. ii. vol. v. pp. 385-390, pl. x. [1878.]

These fossils, brought home by the 'Pandora' in 1875, and some by the expedition in 1853 from Port Dundas, Lancaster Sound, are referred to Silurian or Devonian. *Alveolites arctica*, Beechey Is., is new; the others, mostly corals, have been previously described. E. B. T.

5. ASIA.

Sub-Editor F. DREW, F.G.S.

Abella y Casariego, Enrique. Memoria acerca de los Criaderos Auríferos del Segundo Distrito del Departamento de Mindonao, Misamis, Islas Filipinas. [Gold Mines of the second district of the Department of Mindonao, Misamis, Philippine Islands.] *Boll. Com. map. geol. Españ.* lvi. pp. 33-62.

Gold is found in Alluvial gravels and in veins in quartz. Gives 4 plans of alluvial districts from which gold is obtained in gravel.

——. Observaciones tomadas al paso en los Viajes hechos á las Comarcas Auríferas de Misamis (Islas Filipinas). [Journings in the Gold District of Misamis, Philippine Islands.] *Boll. Com. map. geol. Españ.* t. vi. pp. 63-81.

Gives a descriptive catalogue of the rocks found and a map of the district, showing 4 formations—Alluvial, Metamorphic, Miocene, and Primary. J. F.

Abich, Hermann. Ueber die Productivität und die geotektonischen Verhältnisse der kaspischen Naphtaregion. [Caspian Naphtha District.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. pp. 165-188. See also Ueber das Vorkommen von Petroleum bei Baku, *Verh. k.-k. geol. Reichs.* p. 98.

At Baku are 140 refineries; the amount of naphtha raised in 1878 was 20 million Pud (40 Russian pounds); the district of fruitful boreholes contains about 4 square kilometres; on the Tscheleken Island the naphtha was accompanied by water at 30° R. and very rich in calcic chloride. An inorganic origin is adopted both for the Caucasus and Pennsylvania petroleum, in favour of which theory Mendeleeff's writings are quoted. E. B. T.

Anon. Physical Features of Cyprus. *Journ. Soc. Arts*, vol. xxvii. pp. 938, 939.

Refers to the geology.

——. Gold in Midian. *Athenæum*, Jan. to June, p. 124.

——. Geology, Mineralogy, in Vol. I. of the British Burmah Gazetteer. Ed. by H. R. Spearman. 8vo. *Rangoon*.

Anon. Coal in Japan. *Nature*, vol. xx. no. 498, p. 66.

Notes the discovery of two seams of coal in the Takashima mines.

Ball, V. On the Aurunga and Hutár Coalfields and the Iron Ores of Palamow and Toree. *Mem. Geol. Surv. Ind.* vol. xv. pt. 1, pp. 127, plate and 3 maps.

Contains a sketch of the general geology of the district, which includes the metamorphic series, Gondwana system, Deccan trap, and superficial deposits; an account of the rocks of the Aurunga and Hutár coal fields; and a chapter on Economic Resources, which gives assays of coals from the two fields with some from the Daltonganj coal field, an estimate of the amount of coal, a description with assays of the iron-ores (magnetite, siderite, limonite, and hæmatite) in various localities, and of the native method of working them, a note on the limestones, a notice of the existence of ores of lead and copper, and a short appendix on the Tatapani coal field.

F. D.

——. On Stilbite from veins in Metamorphic (Gneiss) Rocks in Western Bengal. *Proc. R. Dublin Soc.* n. s. vol. ii. part ii. pp. 121, 122.

Notes the occurrence of three veins of Stilbite, the chief one from half an inch to ten inches wide.

——. On the Coal Fields and Coal Production of India. *Rep. Brit. Assoc.* for 1879, pp. 334, 335.

A general statement of the distribution of the coal-bearing rocks, and of the quality and amount of coal raised.

——. On the Volcanos of the Bay of Bengal. *Geol. Mag.* dec. ii. vol. vi. pp. 16–27, plate.

Gives an abstract of the published accounts of Barren Island from 1787, and a general description of both Barren Island and Narkondam.

F. D.

——. Jungle Life in India, or the Journals of an Indian Geologist. 8vo. *Lond.*

Bates, H. W. The Alai and Pamir; Mushketov's Explorations. *Proc. R. Geogr. Soc.* n. s. vol. i. pp. 125, 126.

Notifies some geological discoveries made by Mouchketoff.

Blanford, W. T. President's Address. *Proc. Asiatic Soc. Bengal* for Feb. 1879, p. 33.

Discusses several points in Indian geology, pp. 39–49.

Chaplin, Prof. Examination of the Earthquakes recorded at the Meteorological Observatory of Tokio. *Trans. As. Soc. Japan*, vol. vi. pt. ii.

Coquand, H. Notice géologique sur les environs de Panderma (Asie-Mineure). [Geology of Panderma, Asia Minor.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 347-357.

Notes leptynite, schists, U. Devonian marble, gravel, clay, M. Tertiary lignite (with rough analysis), Carboniferous limestone, Nummulitic conglomerate and limestone, and trachyte. Mt. Ida consists of U. Devonian marble. W. H. D.

Doyle, Patrick. Tin Mining in Larut. Pp. 32; 6 plates (map, &c.). 8vo. London.

Describes the geological formation of the country, and especially the tin-producing beds. Comments on De la Beche's theory of the formation of deposits of stream-tin. T. W. N.

——. On some Tin-deposits of the Malayan Peninsula. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 229-232.

Gives details of the alluvial deposits containing tin-stone, and shows their relation to the granitic masses.

——. A Contribution to Burman Mineralogy. Reprinted with modifications from the *Rangoon Gazette*. 15 pp. *Privately printed*. 16mo. Calcutta.

Notes the mineral products.

Drasche, Dr. Richard von. Zwei geologische Reisen quer durch die Insel Nippon. [Two Geological Journeys across Japan.] *N. Jahrb.* Heft i. pp. 41-53, with sketch map.

From Tokio to Nikko, Yumotto, Ashio, Takasaki, Niigata, Akatani, and Motomiya. The rocks observed were chiefly old crystalline acid rocks. Augite-andesite is common: Olivine is rare, so that few of the rocks are true basalts. F. W. R.

——. Ueber paläozoische Schichten auf Kamtschatka und Luzon. [Palæozoic Strata of Kamtschatka and Luzon.] *N. Jahrb.* pp. 265-269.

In the absence of palæontological and stratigraphical evidence, the palæozoic age of the rocks is assumed on petrological grounds, principally on the occurrence of great masses of greenstone. F. W. R.

Feistmantel, Dr. O. Palæontological Notes from the Satpura Coal-basin. *Rec. Geol. Surv. Ind.* vol. xii. pp. 74-83.

Note of the occurrence of various fossil plants, with subdivision of the Lower Gondwana beds.

——. [Fossil Flora of India.] *N. Jahrb.* Heft i. pp. 58-62.

A controversial letter as to the age of the plant-beds of Kach, &c.

Footo, R. B. On the Geological Features of the northern part of Madura District, the Pudukotai State, and the southern parts of the Tanjore and Trichinopoly Districts included within the limits of Sheet 80 of the Indian Atlas. *Rec. Geol. Surv. Ind.* vol. xii. pp. 141-158, map.

A detailed account of the occurrence of these series :—Metamorphic, Upper Gondwana, Cuddalore (Tertiary), and Lateritic, with a description of the alluvia and the soils, and a note on the Economic Geology.

F. D.

——. Rough Notes on the Cretaceous Fossils from Trichinopoly District, collected in 1877-8. *Rec. Geol. Surv. Ind.* vol. xii. pp. 159-162.

——. Sketch of the Geology of North Arcot District. *Rec. Geol. Surv. Ind.* vol. xii. pp. 187-208, map.

A condensation of matter previously published, with much new information. The greater part of the district is occupied by the metamorphic group, chiefly granite-gneiss and syenite-gneiss : these rocks have been much contorted ; they sometimes contain fragments of older rocks ; beds of magnetite occur in them, and epidote, scattered through or in veins. Intruded into the gneissic series are veins of granite, felspathic porphyry, and quartz, and dykes of greenstone. The Kadapa series consists of beds of quartzite, many of them conglomeratic. The Upper Gondwana are sandstones and conglomerates with plant remains ; their various outcrop-areas are carefully described. Small patches of the Lateritic formations occur ; in some of these palæolithic implements have been found. There are notes on alluvium, soils, and Economic Geology.

F. D.

Frenzel, A. Minerales del Archipiélago de las Indias Orientales. [Minerals of the E. Indian Archipelago.] *Boll. Com. map. geol. Españ.* t. vi. pp. 87-90.

Translation of a paper noticed in the GEOLOGICAL RECORD for 1877, p. 233.

Fuchs, T. Ueber die von Dr. E. Tietze aus Persien mitgebrachten Tertiärversteinerungen. *Denkschr. k. Ak. Wiss.* Bd. xli. pp. 99-108, pls. i-vi.

Helmersen, G. von. Beitrag zur Kenntniss der geologischen und physiko-geographischen Verhältnisse der Aralo-Kaspischen Niederung. [Geology and Physical Geography of the Aralo-Caspian Depression.] *Bull. Ac. Imp. Sci. St. Pétersb.* t. xxv. pp. 513-549.

Notes on Sarmatian, Miocene, Eocene, Cretaceous, Jurassic, Liassic, Silurian, and Granite. Analyses, by Prof. C. Schmidt, of the water of 2 carbonated springs in the Kara-kum.

W. H. D.

Helmhacker, R. Kurze Uebersicht der geologischen Verhältnisse Japans und der dort vorkommenden nutzbaren Mineralien. [Sketch of the Geology and Economic Minerals of Japan.] *Berg-hütt. Jahrb.* Bd. xxxvii. p. 111.

Summary of the memoirs of Godfrey, Lyman, and Munroe (see GEOLOGICAL RECORD for 1875, pp. 398, 399; for 1877, p. 166; and for 1878, p. 163).

Howorth, H. H. The Mammoth in Siberia. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proc.* pp. 1, 2.

Accounts for Mammoth remains in N. Siberia by supposing that the animals lived in a temperate climate, that they were destroyed by a flood due to some sudden convulsion which also changed the climate.

F. D.

Jamieson, H. W. Beekite from the Punjab. *Geol. Mag.* dec. ii. vol. vi. p. 284.

Lydekker, R. Geology of Kashmir. (3rd notice.) *Rec. Geol. Surv. Ind.* vol. xii. pp. 15-32, with map.

I. Valley of the Jhelam and Kashmir. II. Sind and Tilail valleys. III. Trace of Old Glaciers in Kashmir.

Lyman, B. S. Geological Survey of Japan. *Report of Progress for 1878 and 1879.* Pp. x, 266. 8vo. *Tokio.*

Report of Progress for the Year 1878, pp. 1-198. 'Contains geological and mining information on various regions, with particulars of the mines; of the occurrence of mica, magnetite, antimony, chromite, &c.; of the districts of the hot springs and salt wells; and of the Kaolin quarries. Several coal sections are given.'

On the Progress of the Geological Survey of Japan during the First Half of 1879, pp. 199-230. Includes an account of the Kurotaki lead mines and the coal deposits at Hagiwara, giving sections. Notices the minerals of various districts.

Information obtained through Messrs. Kuwada and Nishiyama, Assistant Geologists, Geological Survey of Japan, pp. 231-241. Relates to copper mines, coal fields, oil districts, and hot springs.

On some Oil Well Statistics, pp. 242-264. Contains Tables of the oil-well districts; assays by T. Shimidzu.

R. B. N.

McMahon, C. A. Notes of a Tour through Hangrang and Spiti. *Rec. Geol. Surv. Ind.* vol. xii. pp. 57-69, map.

Describes the rocks met with on the road, and discusses the glaciation of the district.

Maget, G. Schema géologique de l'archipel Japonais. [Geology of the Japanese Archipelago.] *Rev. Internat. Sci.* no. 9.

Mallet, F. R. Notes on a recent Mud Eruption in Rámri Island (Arakán). *Rec. Geol. Surv. Ind.* vol. xii. pp. 70-72.

An account from native eye-witnesses.

——. On Braunite, with Rhodonite, from near Nágpur, Central Provinces. *Rec. Geol. Surv. Ind.* vol. xii. pp. 73, 74.
Description, with analysis.

——. On Pyrolusite with Psilomelane occurring at Gosalpur, Jabalpur District. *Rec. Geol. Surv. Ind.* vol. xii. pp. 99, 100.
Note of a probable large supply of manganese ore, with analysis.

——. On Mysorin and Atacamite from the Nellore District. *Rec. Geol. Surv. Ind.* vol. xii. pp. 166-172.

The ore which has been spoken of as a doubtful species under the name of *mysorin* proves to be an impure malachite dark coloured by ferric oxide and chalcocite. Small crystals of atacamite have been found in a vein here, the only locality in which atacamite is known to occur in India. F. D.

——. On Corundum from the Khási Hills. *Rec. Geol. Surv. Ind.* vol. xii. p. 172.

It is picked up loose on the surface and used for grindstones. It seems that exportation of it might be remunerative.

Martin, [Prof.] K. Ueber die Fauna javanischer Tertiärschichten. [Fauna of the Tertiary Beds of Java.] *N. Jahrb.* pp. 557-559.

Preliminary notice of the fossil univalves in Junghuhn's collection. They comprise a new *Nautilus* and 161 species of Gasteropods, of which 46 may be compared with species now living in the Indian Ocean. The fossils are from two horizons. Concludes that at the close of the Eocene period the volcanoes of Java, which before formed a series of isolated cones, were upheaved, and that the island remained above water during the Oligocene period, but was submerged in Miocene times, when the upper fossiliferous beds were deposited. F. W. R.

——. Ueber das Tertiär von Java. [Tertiaries of Java.] *N. Jahrb.* p. 850.

Palæontological Notes.

Medlicott, H. B. Annual Report of the Geological Survey of India, and of the Geological Museum, Calcutta. *Rec. Geol. Surv. Ind.* vol. xii. pp. 1-15, with map showing the progress of the Survey.

——. Note on the Mohpáni Coal-field. *Rec. Geol. Surv. Ind.* vol. xii. pp. 95-99.

Deals with the extension of the field, and the progress of mining in it.

Medlicott, H. B., and W. T. Blanford. A Manual of the Geology of India. Chiefly compiled from the observations of the Geological Survey. Part I. Peninsular Area: pp. lxxx, 444, with map of Hill-Ranges. Part II. Extra-Peninsular Area: pp. viii, 817; plates i.-xxi. (fossils and stone implements); geological map (scale $\frac{1}{4,055,040}$) in separate case. Price 16s.

Part I. includes a Summary of the geology of the whole. Chap. 1. Gneissic rocks; 2 and 3. Sub-metamorphic; 4. Vindhyan; 5 and 6. Gondwana; 7-10. Details of coalfields; 11. Marine Jurassic rocks; 12. Marine Cretaceous; 13. Deccan trap series; 14. Tertiary; 15. Laterite, &c.; 16-18. Post-tertiary and Recent (including the Indo-Gangetic Plain).

Part II. Chap. 19. Sind; 20 and 21. Punjab Hills west of the Jhelum; 22 and 23. Sub-Himalayas; 24. Siwalik Fauna; 25. Lower Himalayas; 26 and 27. Central (Tibetan) Himalayas; 28. The Assam Range; 29. Burma.

The Map includes the whole of India, being coloured chiefly from the detailed work of the Survey; but portions have been coloured from sketch surveys on rapid traverses, and some areas are left blank from want of information. F. D.

Middendorff, A. von. Ueber Salmiak-Gewinnung im Serafschan-gebiete. [Salammoniac of Central Asia.] *Bull. Soc. Imp. Nat. Mosc.* t. liii. pp. 265-271.

Refers to ancient records of the working of deposits of sal-ammoniac produced by volcanic sublimation from coal.

Milne, J. A Cruise among the Volcanos of the Kurile Islands. *Geol. Mag.* dec. ii. vol. vi. pp. 337-348, map (not geological).

A general description of some of the islands, with a few notices of the rocks.

Möller, Val. von. Ueber die bathrologische Stellung des jüngeren paläozoischen Schichtensystems von Djoulfa in Armenien. [Position of the younger Palæozoic Strata of Djoulfa in Armenia.] *N. Jahrb.* pp. 225-243.

Concludes from palæontological evidence that these belong to the Permian, and not to the Carboniferous Limestone.

Mojsisovics, Dr. E. von. Zur Alterbestimmung der Sedimentär-Formationen der Araxes-Enge bei Djoulfa in Armenien. [Age of Sedimentary Rocks of Djoulfa.] *Verh. k.-k. geol. Reichs.* pp. 171-173.

Concludes that they are Trias and Permian.

Morse, Edward S. Shell Mounds of Omori. *Mem. Univ. Tokio*, vol. i. pt. 1. Pp. iv, 36; 19 plates.

The mounds yield large quantities of pottery. Stone implements are rare. Peculiar clay tablets or amulets occur. One platycenemic tibia of man was found. Discusses the relation of the shells of the mounds to those of the present fauna of Omori. F. W. R.

Naumann, E. Ueber die Ebene von Yeddo. Eine geographisch-geologische Studie. [Plain of Yeddo.] *Mitth. geogr. Anst.* Bd. xxv. p. 121.

Netto, C. On Mines and Mining in Japan. *Mem. Univ. Tokio*, vol. ii. Pp. 55; 6 plates.

Refers to the useful minerals of Japan. Urges the importance of instituting a systematical geological survey.

Nicholls, G. J. Note on the Joga Neighbourhood and old Mines on the Nerbudda. *Rec. Geol. Surv. Ind.* vol. xii. pp. 173-175, map.

Describes old reputed silver mines in limestone. A note by **F. R. Mallet** shows the specimens obtained to contain disseminated galena with 21 oz. of silver to the ton. F. D.

Perry, F. The Surface Rocks of Syria (suggested by the Quarries at Baalbek). *Rep. Brit. Assoc.* for 1879, pp. 348, 349.

South of Beyrout is a field of sand with which particles of limestone have become mixed. The solution by rain-water and the re-deposition of the carbonate of lime have produced a stone which is used for building. Thinks that the deposition of the dissolved carbonate of lime is due to increase of temperature. F. D.

Phené, Dr. J. S. On the Deposit of Carbonate of Lime at Hierapolis, in Anatolia, and the Efflorescence of the Limestone at Les Baux, in Provence. *Rep. Brit. Assoc.* for 1879, pp. 344, 345.

Hierapolis has been half covered up by a calcareous deposit within 1500 years, deposited in a succession of natural walls, each about 50 feet high. W. T.

Prjevalsky, N., and — von Richthofen. From Kulja, across the Tian Shan to Lob-Nor. 8vo. *London.* Pp. 251, map (not geological).

P. describes Lob-Nor as a freshwater lake. R. doubts the possibility of this, and thinks that the real Lob-Nor was not reached. P. replies that in the marshes and bogs to the N.E. the standing water is doubtless salt, as it is along the western margin of the lake. F. D.

Reyer, Dr. E. Zinn in Birma, Siam und Malakka. [Tin of Burmah, Siam, and Malacca.] *Oesterr. Zeitschr. Berg- Hütt.* p. 563.

Reyer, Dr. E. Banka and Bilitong. *Oesterr. Zeitschr. Berg- Hütt.* Bd. xxvii. pp. 384, 385; see also *Nature*, vol. xx. p. 624. Geological sketch map of N.E. Banka.

Describes the geological structure of these tin-yielding localities and the distribution of the ore. Gives mineral statistics, and references to authors. J. W. J.

Romanowsky, G. *Materiale do Geologii Turkestan* . . . [Geology of Turkestan. I. Geology and Palæontology of N.W. Thian Schan and S.E. Turania.] Pp. 167; 30 pls. 4to. *St. Petersburg.*

This work has not been seen, but from a botanical review we find that Silurian, Rhætic, and Liasic rocks are noted, and their fossils described, including the following new plants (Liassic):—*Equisetum Lahusenii*, *Asplenium Tutarinovi*, and *Spirangium Gilewi*, and a Silurian fucoid. W. C.

Smyth, W. W. Address of the President for 1878. 65 *Ann. Rep. R. Geol. Soc. Cornwall*, pp. xi-xxv.

On tin ore in the Dutch East Indies, and on the geology of the Island of Cyprus.

Temple, R. C. Notes on the Formation of the Country passed through by the 2nd Column Tal Chotiali Field Force during its march from Kila Abdullah Khan in the Khojak Pass to Lughari Barkhán. Spring of 1879. *Journ. As. Soc. Bengal*, vol. xlviii. pp. 103-109, map (not geological).

Contains some notes as to the rocks and the occurrence of fossils.

Tietze, Dr. Emil. *Die Mineralreichthümer Persiens.* [Mineral Riches of Persia.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 4, pp. 565-658.

From result of his own and previous travellers' observations gives localities, and what is known of the geological relations, of the following minerals:—Salt, chiefly in Miocene, wide-spread; Alum, Gypsum, and Saltpetre; Naphtha, several natural springs; Sulphur; Coal of Lias age, the beds of good quality, but not thick, analyses given; Iron as clay-iron ore commonly found with the Lias coal; Cobalt occurs and is used for blue enamel; Copper in many places; Zinc and Tin occur; Lead is abundant; Gold is not found in quantities to pay. Analyses of certain edible earths are given. E. B. T.

Veth, Prof. P. J. The Dutch Expedition to Central Sumatra. *Proc. R. Geogr. Soc.* n. ser. vol. i. no. 12, pp. 759-777.

Reference is made on p. 760 to the discovery of coal near the River Umbileri. A. R. Wallace remarks (in discussion) that the coal is of Tertiary age. R. B. N.

Virchow, Prof. Rudolf. Beiträge zur Landeskunde der Troas. *Abh. k. Ak. Wiss. Berlin*, Abth. iii. pp. 190 ; 2 pls.

Note on the geology ; changes of the rivers, coast, and plain.

Waagen, W. Note on the "Attock Slates" and their probable geological position. *Rec. Geol. Surv. Ind.* vol. xii. pp. 183-185.

Notes the occurrence of *Spirifer keilhavi* (= *S. Rajah*) in specimens of slate from the Geol. Soc. labelled "Punjab." Believing them to have come from the Attock Slates, infers that these are Carboniferous. Discusses the bearing of this on the placing of Wynne's "Infra-Triassic group," and his correlation of that with the "Tanol series." F. D.

——. Ueber die geographische Vertheilung der fossilen Organismen in Indien. [Distribution of Fossils in India.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xxxix. pp. 1-28. English version in 1878 (see GEOLOGICAL RECORD for 1878, p. 166).

——. Ueber einige strittige Punkte in der Geologie Indiens. [On some controversial points in the Geology of India.] *N. Jahrb.* pp. 559-562.

Woeikof, —. Reise durch das mittlere und südliche Japan. [Travels in Central and South Japan.] *Mitth. geogr. Anst.* Bd. xxv. p. 41.

Wynne, A. B. A Geological Reconnaissance from the Indus at Kushalgarh to the Kurram at Thal on the Afghan frontier. *Rec. Geol. Surv. Ind.* vol. xii. pp. 100-114, map.

The route lay first in sandstones and red clay of either lowest Siwalik or uppermost Murree beds ; then in the Subáthu zone of rocks, nummulite and alveolina limestones, dark shales, red clays, with gypsum. Sulphur and petroleum springs occur.

The strata are bent in compressed folds and in one place inverted. Details of the beds in various localities are given. The Subáthu group appears to be 5000 to 6000 ft. thick ; it has varied much from its character on the Jhelam. The nature of the junction with the secondary rocks in one or two places is noted. Opposite Thal, on the Afghan side, a mass of trap, from coarsely crystalline to compact, occurs, altering the beds, and also masses of agglomerate, &c., which may be contemporaneous with the Subáthu beds. F. D.

——. Further Notes on the Geology of the Upper Punjab. *Rec. Geol. Surv. Ind.* vol. xii. pp. 114-133, map and 2 plates of sections.

Supplementary to notes in *Rec. Geol. Surv. Ind.* vol. x. Gives an account of the form of the ground. Describes the following series of rocks in detail :—Crystalline metamorphic azoic rocks ; Attock slates (azoic) ; Tanol group (azoic), many thousand feet in thickness, consisting of quartzites and sandstones with some dolomite. Up to here the strata

are probably Palæozoic, and intrusive traps occur in them. Above come 3000 or 4000 ft. of Triassic beds, including much limestone; a small thickness of Jurassic shales; some Cretaceous limestone; L. and U. Nummulitic beds; Murree sandstones and clays, and Post-tertiary deposits. A tabular comparison of these Hazara series and the Kashmir series is made. The map extends from Murree and Hassan Abdal to the Black Mountain and the Kaghan valley. General transverse sections are given. F. D.

Wynne, A. B. On the continuation of the Road Section from Murree to Abbotabad. *Rec. Geol. Surv. Ind.* vol. xii. pp. 208-210.

Details of the occurrence, along the military road, of nummulitic limestone and shales, some sandy limestone with obscure fossils (Brachiopoda, Gasteropoda, &c.), Spiti shales with Ammonites and Belemnites, and azoic Attock slates. F. D.

—. Recent Publications of the Geological Survey of India. *Geol. Mag.* dec. ii. vol. vi. pp. 429-431.

Refers to Dr. Waagen's statements in *Palæontologica Indica*, ser. xiii., as to the classification of the rocks of the Salt Range.

Zappe, —. Der Bergbau Japans. [Japanese Mining.] *Zeitschr. Berg-Hütt. Salinenw.* Bd. xxvii. p. 204.

Gives statistics of the mineral produce of Japan for 1875-77, and sketches of the different mines.

Report of the Committee appointed for exploring certain Caves in Borneo. *Rep. Brit. Assoc.* for 1879, pp. 149-155.

Prints a Report by A. H. Everett, with list of remains from the caves. They are all of recent species; a large number of land and freshwater shells occur, some new. W. T.

See also :—

Chief Commissioner of Assam. Earthquakes: *post*, under PHYSICAL GEOLOGY.

SUPPLEMENT FOR 1875-1878.

Beke, C., and J. Milne. Discoveries of Sinai in Arabia and of Midian. Geological notes (by Milne) on the places visited, pp. 525-555. *London*, 1878.

Davidson, George. Abrasions of the Coast of Japan. *Proc. Calif. Ac. Sci.* vol. vi. pp. 28, 29. [1876.]

The author did not find the well-marked terraced points resembling those on the north-west coast of North America, except at Cape Canon and at Oô Sima.
R. B. N.

Simonovitch, —, — Batsevitch, and — Sorokin. [Description géologique du cercle de Kutâis.] 3 vols. Pp. 355; 4 pls., 2 maps. 8vo. *Tiflis*, 1873-1875. Atlas 9 pls. 1 map. 4to. *Tiflis*, 1875.

—, —, —. [Description géologique du cercle de Piatigorsk.] Pp. 111. 8vo. Atlas 7 pls. 1 map. 4to. *Tiflis*, 1876.

—, —, —. [Description géologique du gouvernement de Kutâis.] 8vo. *Tiflis*, 1877.

—, —, —. [Description géologique d'une partie des cercles de Signan et de Tiflis.] 8vo. *Tiflis*, 1878.

These four are noted from the library list of Soc. Géol. France. The text is probably Russian.

6. AFRICA.

Sub-Editor W. TOPLEY, Assoc. Inst. C.E., F.G.S.

Anon. Coal Deposits in Central Africa. *Kansas City Rev. Sci. Ind.*
vol. iii. no. 1, pp. 3, 4.
Note of discovery.

Balland, —. Les eaux du Chélif; quelques observations au sujet
de la mer intérieure d'Algérie. [The Waters of the Cheliff Oasis;
their bearing on the subject of the Inland sea of Algeria.] *Compt.*
Rend. t. lxxxviii. pp. 408–411.

A large quantity of material is carried by rivers and streams which
are now lost in the Chotts; this with great evaporation is a difficulty
as regards the proposed inland sea. W. T.

Blencowe, Rev. G. On certain Geological Facts observed in Natal
and the Border Countries, during Nineteen Years' Residence. *Rep.*
Brit. Assoc. for 1879, pp. 349, 350.

The basal rocks of the coast are shales overlain by sandstones; these
are succeeded by other shales. The N. part of Natal is white sand-
stone overlain by trap, both lying flat. The trap caps hills 2000 feet
above the plain. W. T.

Bourjot, A. Géologie du Double Massif du Sahel d'Alger et des
Promontoires qui limitent ses rivages. *Algiers.* 8vo. Pp. 170;
geol. map 1: 80,000; 13 cuts.

Describes 7 sedimentary formations (Molasse, Pliocene, and Recent
beds); 6 eruptive or metamorphic series. The latter occur only in the
neighbourhood of Algiers and on the opposite point of C. Matifou.

W. T.

Carruthers, W. Note on Mr. Lee's Specimens of Fossil Wood from
Griqua Land. *Geol. Mag.* dec. ii. vol. vi. p. 286.

From Kimberley Mine. Coniferous structure; some are lignite, some
like true coal.

Decken, C. C. von der. Reisen in Ost-Afrika in den Jahren 1859–
1865. Bd. iii. Wissenschaftliche Ergebnisse. 3 Abth. 4to.
Leipzig and Heidelberg. Map, plates, and table.

Geology described by **Alexander Sadebeck** (pp. 40), with geological map of the E. coast from Massowa to the Zambesi, including the great lakes; scale 1:7,500,000. W. T.

De Rance, C. E. Geology of Natal and Zululand. *Nature*, vol. xix. pp. 467, 468.

General description, from Griesbach, Sutherland, and Grey.

Dunn, E. J. Report on Camdeboo and Nieuwveldt Coal. [Cape Colony.] Pp. 34; 24 plates (plans and sections). *Cape Journ.* Abstract in *Geol. Mag.* dec. ii. vol. vi. pp. 553, 554.

Describes the coal outcrops of these mountains generally; and dwells especially on the Stormberg, Karoo, and Ecce beds; the last are shown to be Carboniferous. T. W. N.

Duponchell, A. Le Chemin de Fer Trans-Saharien: Jonction coloniale entre l'Algérie et le Soudan. [Trans-Saharan Railway.] 8vo. *Paris*. Pp. 371; 2 maps.

Gives brief geological notices.

Jus, —. Les Oases de l'Oued Rir en 1856 et 1879, suivies du résumé des travaux de sondages exécutés dans le département de Constantine de 1878 à 1879. [Wells in Constantine.] Pp. 26. 8vo. *Paris*.

Lenz, O. Geological Notes on Western Africa. *Geol. Mag.* dec. ii. vol. vi. pp. 172-176; from *Verh. k.-k. geol. Reichs.* See GEOLOGICAL RECORD for 1878, p. 173.

Marès, G. Algérie, Climat et Constitution Géodésique. *L'Exploration*, no. 118, pp. 585-589.

Martins, Ch., and E. Desor. Observations sur le projet de la création d'une Mer intérieure dans le Sahara oriental. *Compt. Rend.* t. lxxxviii. pp. 265-269.

Point out changes of climate which must result from the formation of a Saharan sea.

Meunier, St. Le chemin de fer transsaharien. [Trans-Saharan Railway.] *La Nature*, geol. map.

Mitchell, —. Reconnaissance des anciennes mines de Hammamat. *Bull. Soc. Khédiv. Géogr.* no. 6.

Nachtigal, Gustav. Sahara und Südân, Ergebnisse sechsjähriger Reisen in Africa. 1 Theil. 8vo. *Berlin*. Pp. 748, maps, tables, and cuts.

Divided into 3 sections—(1) Tripoli and Fezzân, (2) Tibesti or Tu, (3) Journey to Bornû. Describes the physical geography, natural products, springs, &c. W. T.

Papier, —. Sur le gisement précis de l'*Hippopotamus Hipponensis*. *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 389.

This Pliocene species was not found at Bone (ancient Hipponne), but at Duirvier, 58 kilom. to S.E.

Piers, H. W. Stray Notes on the Geology of the Fort Beaufort District. *Trans. S. Afr. Phil. Soc.* vol. i. (1878) pt. ii. pp. 23–26. Describes sandstone with *Dicynodon*, and Drift.

Pomel, A. [Quaternary Beach, Algeria.] *Bull. Soc. Géol. France*, sér. 3, t. vi. p. 548.

Contains shells no longer found in the Mediterranean and allied to Pliocene species. Also an Elephant near *E. antiquus*.

— Ossements d'Éléphants et d'Hippopotames découverts dans une station préhistorique de la plaine d'Eghis (Province d'Oran). [Elephant and Hippopotamus Bones, Oran, Algeria.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 44–51; and *Mat. Hist. Homme*, sér. 2, t. x. p. 133.

Describes the Jurassic, Cretaceous, Tertiary, and Quaternary beds, and the fossils of the last.

— La géologie du Soudan et du Sahara (suite). *Rev. Géogr.* no. 40.

Prosser, W. The Limestones of the Colony. *Trans. S. Afr. Phil. Soc.* vol. i. (1878) pt. v. pp. 47–53.

Some are Devonian. Tufa is widely spread, derived from the Devonian limestone: water is frequently obtained by sinking through the tufa. W. T.

— The Granites and Gneiss of the Colony. *Trans. S. Afr. Phil. Soc.* vol. i. (1878) pt. ix. pp. 93–100.

Of Sea Point and Table Mountain. Granite has penetrated the Silurian rocks and now overlies them.

Roudaire, —. Sur les sondages opérés en vue de la création d'une Mer intérieure en Algérie. *Comp. Rend.* t. lxxxviii. p. 988.

Communication can be made between Chott Djérid and Chott Bharza W. of Nefta.

— Sur la nature du sol de l'isthme de Gabès et des Chotts. *Compt. Rend.* t. lxxxviii. pp. 1348–1350.—Notice, by [F.] de Lesseps. *Ibid.* pp. 1344, 1345.

Twenty-two borings have been made, to 10 metres below sea level; they prove clayey marls and sand and watery layers. A thin bed of limestone occurs elsewhere, but nothing to prevent the easy construction of the canal. W. T.

Shaw, J. The Petrography of Table-Mountain Valley. *Trans. S. Afr. Phil. Soc.* vol. i. (1878) pt. vi. pp. 55-65.

Description, with analyses of trap, clay-slate, and of granite and sandstone.

Sibree, Rev. James, Junr. Observations on the Physical Geography and Geology of Madagascar. *Nature*, vol. xx. pp. 368-372; geol. map and sections.

Describes volcanic action of recent date, and gives reference to published papers.

——. History and Present Condition of our Geographical Knowledge of Madagascar. *Proc. R. Geogr. Soc.* n. ser. vol. i. pp. 646-665, with map (partly geological).

Denotes generally the areas occupied by granite and the extinct volcanos, and notices some Secondary rocks.

Stecker, A. Brunnentemperatur und Höhenmessungen in Tripolitani und der Sahara. *Mith. Afrik. Gesellsch.* Bd. ii. pp. 40-44.

Stow, G. W. Report of the Geological Survey of the Orange River Free State. From the 18th April to the 17th December 1878. Pp. 55. 8vo. *Bloemfontein*. Abstract in *Geol. Mag.* dec. ii. vol. vi. pp. 514-516.

Refers to the great Coal-field of South Africa. The rocks found are Nodular Limestone, great beds of Crystalline Limestones, an immense area of Porphyritic Rocks, Magnetic and other rich Iron-ores, and a great coal bed. The coal in the Sand River and Vaal River districts is estimated at 495,800,000 tons at least. W. W.

Thomson, J. Notes on the Geology of Usambara. *Proc. R. Geogr. Soc.* n. ser. vol. i. pp. 558-561.

A general view of the geology of the country traversed from Pangani Bay to Ngambo (E. Africa); the formations met with were Metamorphic, Carboniferous, Tertiary (raised beaches), and Recent alluvium. F. D.

Tournouër, —. Sur quelques coquilles marines recueillies par divers explorateurs dans la région des chotts sahariens. [Marine Shells from the Chotts (Salt Lakes) of the Sahara.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 608-622, pp. vi.

The plate gives the varieties of *Cardium edule* found by various explorers. The conchological facts do not prove the existence of a great Quaternary Saharian sea, but do not contradict it. W. R. J.

——. [Hipparion in U. Tertiary of Constantine.] *Bull. Soc. Geol. France*, sér. 3, t. vi. pp. 305, 306.

Note on the freshwater deposit yielding these and other remains.

Wilson, Rev. C. T. [Voyage across the Victoria Nyanza.] *Church Missionary Intelligencer*, July.
The geological formations noticed.

Précis of Information concerning the Colony of Natal. Prepared in the Intelligence Branch of the Quartermaster-General's Department, Horse Guards, War Office. Corrected to June 1879. 8vo. London. Pp. 173, map.
Describes the geology.

SUPPLEMENT FOR 1877 and 1878.

Drée, —de. Voyage aux mines de diamants dans le Sud de l'Afrique. [Diamond Mines, S. Africa.] *Tour du Monde*, 1878, nos. 931–933.

Durrwell, Eugène. Géologie de la province d'Oran. Chemie agricole. Météorologie. Notes diverses. Pp. 47. 12mo. Paris, 1877.

Filhol, H. Note sur la découverte d'un nouveau Mammifère marin (*Manatus Coulombi*) en Afrique, dans les carrières de Mokattam près du Caire. [Discovery of *M. Coulombi* at Mokattam Quarries.] *Bull. Soc. Philom. Paris*, sér. 7, t. ii. p. 124. [1878.]

Fuchs, Edm. Note sur l'isthme de Gabès et l'extrémité orientale de la dépression saharienne. [Eastern End of the Sahara.] *Bull. Soc. Géogr. Paris*, t. xiv. p. 248. [1877.] See GEOLOGICAL RECORD for 1874, p. 145.

Fuchs, Theodor. Die geologische Beschaffenheit der Landenge von Suez. [Geology of the Isthmus of Suez.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xxxviii. Abth. 2, pp. 25–42; 3 pls., map and fossils. [1878.]

Describes the structure of the isthmus, which consists of recent beds. Miocene and Eocene beds occur near it on the Egyptian side. The new fossil species described and figured are from Quaternary beds, named in the GEOLOGICAL RECORD for 1877, p. 309, where this part of the work was noticed by mistake. W. H. D.

Haynes, —. Silex acheuléens de l'Egypte. [Worked Flints, Egypt.] *Bull. Soc. Anthropol. Paris*, sér. 3, t. i. p. 339. [1878.]

Lesseps, F. de. Etudes de sondages entrepris par M. Roudaire en vue de l'établissement de la mer intérieure africaine. [Borings in Algiers.] *Compt. Rend.* t. lxxxvii. p. 909. [1878.] For continuation see GEOLOGICAL RECORD for 1878, p. 423.

Piers, H. W. The Movements of Sea-sands and Bar Harbours. *Trans. S. Afr. Phil. Soc.* vol. i. (1877) pt. ii. pp. 7-10. [1878.]
Describes the mouths of S. African rivers. All except the Kie and Great Fish Rivers have bars or a sand-spit from the west.

Pomel, A. La mer intérieure d'Algérie et le seuil de Gabès. [Algerian Inland Sea and the Rock-bar of Gabès.] *Rev. Sci. sér.* 2, ann. 7, p. 434. [1877.]

Pouyanne, —. Notice minéralogique sur le département d'Alger et d'Oran. 8vo. *Paris*, 1878.

Prosser, W. Notes on the Devonian and Ash Beds of the Karoo and Gouph. *Trans. S. Afr. Phil. Soc.* vol. i. (1877) pt. iv. pp. 13-35. [1878.]

The Karoo beds (shales) are Carboniferous; the Trappean Ash and Conglomerate is an aqueous Devonian deposit.

Shaw, John. The Age of the Volcanic Throats of the Upper Karoo Formations of South Africa. *Trans. S. Afr. Phil. Soc.* vol. i. (1877) pt. i. pp. 1-5.

They traverse the Karoo Beds (Triassic); the sheets of trap are horizontal, and the eruptions were probably of Tertiary age.

7. AUSTRALASIA.

Sub-Editor R. B. NEWTON, F.G.S.

Adams, R. D. Gold Mining in New South Wales. *Min. Journ.* vol. xlix. p. 268.

Refers to opening of successful reefs where gold was thought not to exist. Barrington gold-field is noted for its rich yields.

Anon. The Geological Indications requisite to determine the Position and Nature of Lodes. *Ann. Rep. School Mines, Ballarat*, p. 17.

A circular to mining managers from the Administrative Council of the School of Mines, Ballarat, requesting the fullest information on the occurrence of quartz. R. B. N.

——. Coal in New Zealand. *Nature*, vol. xix. no. 476, p. 131.

Notes the discovery of a 5-feet coal seam at Mohikinui, Buller County.

——. Discovery of Graphite at Wellington. *Nature*, vol. xx. no. 483, p. 300.

——. Discovery of a Lead and Silver deposit near Thames River, New Zealand. *Nature*, vol. xx. no. 499, p. 89.

——. Exploration of Western Australasia. *Nature*, vol. xx. p. 582.

Notices **Mr. A. Forrest's** explorations of N.W. Australia, with remarks on the character of the soils, &c. No indications of gold were met with. R. B. N.

——. The Mineralogical Resources of New Zealand. *Coll. Guard.* vol. xxxviii. p. 23.

Refers to coal and iron; especially to the deposits of ironstone at Para Para, Nelson. Gold, silver, copper, lead, mercury, plumbago, and sulphur are also found; the last in large quantities. R. B. N.

Anon. Queensland Coal Resources. *Min. Journ.* vol. xlix. p. 390.

Coal has been found on the banks of the Brisbane and the Brewer rivers, in other parts of West Moreton district, and on the Darling Downs. Coal beds of Queensland estimated to underlie a surface of nearly 24,000 square miles. Ores of copper and gold are also found.

R. B. N.

— [Oliver Wakefield.] Statistics of the Workings in the Coal Mines of New Zealand. *Coll. Guard.* vol. xxxviii. no. 987, p. 866.

Gives localities of the mines, quality of coal, number, thickness, and dip of seams.

Anthony, T. On the Occurrence of Copper Ore in the Wallaroo District, South Australia. *Min. Journ.* vol. xlix. p. 785.

Describes the copper-ore, and the order of occurrence of the copper-ores from the surface downwards.

Baker, Hon. E. A. Mines and Mineral Statistics. *Annual Report of the Department of Mines, New South Wales, for the year 1878.* 8vo. Sydney. Pp. v, 179; geological map, sections, plates, plans.

1. **H. Wood.** Annual Report, pp. 1-60. Contains information respecting the yield of various metals, &c. Coal: 53 sections of the Northern coal-field by **T. P. Moody.** Assays and analyses of gold, ores, coals, &c., by **W. A. Dixon** and **Prof. A. Liversidge**; a sub-report on the Boorook silver mines by **L. Young**; and Tables showing the width, dip, and strike of quartz reefs in some of the deepest mines.

2. Wardens' report, pp. 61-96.

Reports from the Gold-field Wardens on the different mining districts.

3. Mining Registrars' Reports, pp. 97-133.

G. H. Gower announces the discovery of a lead and silver lode, 8 miles from Vegetable Creek, and gives a sketch plan of the Vegetable Creek Tin-mining district, showing principal Mines working for Stream Tin under the Basaltic formation.

4. Inspector of Mines Report, pp. 133-136.

5. **J. Mackenzie.** Report of the Examiner of Coal-fields, &c. pp. 138-145.

6. **C. S. Wilkinson.** Report of the Geological Surveyor in charge for the Colony of New South Wales for the year 1878, pp. 149-173, with Appendices:—A. On auriferous and other specimens from New Guinea, with a list of geological specimens, pp. 157-159. B. On the Barrington Coal-field, pp. 159-164. **C. R. Etheridge, Junr.,** On a species of *Unio* discovered in the Home Rule Lead, Gulgong, New South Wales, pp. 164-169, fig. on pl. iii. Treats of the Fossils noticed in connection with Australian gold drifts. On the affinities of the Gulgong fossil *Unio*. Describes *Unio Aucklandicus*, Gray, var., and

U. Wilkinsoni, n. var. (from U. Pliocene). D. Dr. F. von Müller on the Tertiary Flora of New South Wales (vegetable Fossils of the Upper Pliocene age discovered at Gulgong), pp. 169–172, plates iii., iv. [previously published, except the plates, see GEOLOGICAL RECORD for 1877, pp. 374, 375.] F. L. Young. On Gold fields, County of Harden, pp. 175–177; also Report on Bingera Gold field, pp. 178, 179.

7. C. S. Wilkinson and L. Young. Geological Map, with explanatory note, of the Town and Environs of Young. Scale: 24 chains to the inch. R. B. N.

Brady, Joseph. The Sandhurst Water Supply, Victoria, Australia. *Proc. Inst. Civ. Eng.* vol. lvi. part ii. pp. 134–151; discussion, pp. 152–170.

The chief reservoir of this district is in the schistose formation.

Campbell, W. D. On Beach Protection. *Trans. N. Zealand Inst.* vol. xi. pp. 146–149, plate iii.

Refers to the encroachment of the sea on the sandy ridge upon which part of Hokitika is built. Explains the actions of the waves which cause the movements of shingle and sand along the coast. R. B. N.

Cox, S. H. Some Notes on the D'Urville Island Copper Mine. (Abstract.) *Trans. N. Zealand Inst.* vol. xi. (*Proc.*) pp. 525–527 [with discussion].

Copper occurs in a belt of Serpentine of the Maitai series. Cuprite, Malachite, and Azurite are found.

Dobson, Edward. The Geelong Water Supply, Victoria, Australia. *Proc. Inst. Civ. Eng.* vol. lvi. part ii. pp. 94–133, pls. 5, 6 (sections); discussion, pp. 152–170.

Describes the geological features of the Geelong district.

Etheridge, R., Junr. Report on a Collection of Fossils from the Bowen River Coal-field and the Limestone of the Fanning River, North Queensland. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proceedings*, pp. 101, 102 [abstract]; and *Annals*, ser. 5, vol. iv. p. 319.

Records the following new species:—*Protoretetpora Koninckii* (Permian-Carboniferous) and *Crioceras Jackii* (Cretaceous) from Bowen River, *Strophalosia Jukesii* (Carboniferous) from New South Wales. R. B. N.

Feistmantel, Dr. O. Notes on the Fossil Flora of Eastern Australia and Tasmania. *Geol. Mag.* dec. ii. vol. vi. pp. 485–492.

Contains an account of the plant-bearing beds and of the Flora peculiar to the Palæozoic and Mesozoic formations.

Gregory, A. C. Report on the Burrum Coal Mines. Fol. *Brisbane*.

——. Report on Coal between Dalby and Roma, Southern Queensland. Fol. *Brisbane*.

——. On the Geological Features of the South-eastern districts of Queensland. Fol. *Brisbane*.

Haast, Prof. J. von. Geology of the Provinces of Canterbury and Westland, New Zealand. A Report comprising the results of Official Explorations. Pp. xi, 486 ; illustrations, maps and sections. 8vo. *Christchurch*.

i. Historical notes on the Progress of the Geological Survey, pp. 1–171. ii. Physical Geography, pp. 172–235. iii. Geology, pp. 236–486. R. B. N.

——. On the Geological Structure of Banks Peninsula, being an Address. (Philosophical Institute of Canterbury.) *Trans. N. Zealand Inst.* vol. xi. pp. 495–512.

Contains an account of the origin, formation, &c. of volcanic dykes which intersect this region, as disclosed by the Christchurch and Lyttelton Railway Tunnel. R. B. N.

Hector, Dr. J. Colonial Museum and Geological Survey of New Zealand. Reports of Geological Explorations during 1878–79. Maps and sections. Pp. 135. 8vo. *Wellington*.

Progress Report 1878–79. Explains the classification adopted in the new geological map, giving a table of strata, with approximate thicknesses, pp. 1–17.

On the Westland District, pp. 17–20. *a.* Rangitoto Mine : states mode of occurrence, &c. of the lodes which contain iron-pyrites (with gold), galena (with silver), and zinc-blende. *b.* Upper Hokitika River. *Pyrrhotine*, containing nickel with a small percentage of gold, is the only ore. *c.* Kumara : Remarks on the alluvial gold leads. *d.* Langdon's Reef : Mentions the occurrence in the Alluvium of stibnite containing a large percentage of gold.

On the Mokau district, pp. 20–22. Notices the Cretaceo-Tertiary Coal seams, from 2 to 6 feet thick.

On the Thames Gold Field, pp. 22, 23. The auriferous reefs are found in igneous tufa of probably Cretaceous age.

On the Macetown Reefs, pp. 23, 24. Gives geological and mining matter.

Pp. 24–41 contain summaries of the separate reports that follow :—

S. H. Cox. On the Tuapeka Cements, pp. 42–53. The formations are tabulated and described as follows—Cretaceo-Tertiary (3 divisions), L. Carboniferous (2 divisions), Foliated Schists (2 divisions).

S. H. Cox. On the Wakatipu and Greenstone district, pp. 53-55.

S. H. Cox. On the D'Urville Island Copper Mine, pp. 55-59. States position of lode and gives assays.

G. J. Binns. On Hematite at Parapara, pp. 59-64. Notices published works and describes the situation and mode of occurrence of the deposits.

Alex. McKay. On the Occurrence of Moa Bones at Taradale, near Napier; sections, pp. 64-69. The deposits at Taradale containing Moa remains belong to the Recent period.

Alex. McKay. On the Geology of the district between Waipukurau and Napier, pp. 69-75.

Alex. McKay. On the southern part of the East Wairarapa district, pp. 75-86. Formations from U. Devonian through Cretaceo-Tertiary and Tertiary to Recent are described. Sections given of Palliser Bay and White Rock.

Alex. McKay. On the district between the Kaituna Valley and Queen Charlotte Sound, pp. 86-97. Describes the formations, giving a table of strata.

Alex. McKay. On the district between the Wairau and Motueka Valleys, pp. 97-121. Gives a map showing the geology, a table of formations, and sections.

Alex. McKay. On the Baton River and Wangapeka Districts and Mount Arthur Range, pp. 121-131. Gives a table and description of formations.

Alex. McKay. On the Geology of the Neighbourhood of Wellington, pp. 131-135. Gives table of formations. The position of the strata is based on mineral characters, fossil evidence being insufficient to correlate them with beds found elsewhere.

R. B. N.

Hector, Dr. J. Colonial Museum and Geological Survey of New Zealand. Fourteenth Annual Report of the Colonial Museum and Laboratory. Pp. 54. 8vo. *Wellington*.

Refers to fossils collected from various formations ranging from Recent to L. Silurian. Gives the genera and species of forms from the U. Silurian rocks of the Baton River district. Gives analyses of coals, oils, rocks, minerals, metals, ores, soils, and mineral waters.

R. B. N.

——. On the Fossil Flora of New Zealand. [Abstract.] *Trans. N. Zealand Inst.* vol. xi. pp. 536, 537.

Gives the names of the leading plants typical of the formations of New Zealand.

Howitt, A. W. Note on the Physical Geography and Geology of North Gippsland, Victoria. *Quart. Journ. Geol. Soc.* vol. **xxv**. pp. 1-41, sections.

The following is a schedule of the geological formations :—

Silurian	{ Auriferous slates of the Crooked, Dargo, Wentworth, Nicholson, and other Rivers. Metamorphic crystalline schists of the Omeo district. Granites connected with the above divisions. Snowy B. porphyries; felstones and agglomerates of Wombargo.
Devonian	{ M. Devonian limestones of Buchan and Bindi; Tabberabbera shales. U. Devonian shales and limestones of Cowombat and Native Dog Ck., Iguana Ck., and Maximilian Ok., Snowy-Bluff and Mt. Tambo beds.
Carboniferous	Sandstones of Avon R.
Miocene	Bairnsdale Limestones.
Pliocene	{ Moitun Ck. beds; sandstones and marls of Jeminy's Point and Lake Tyers. Dolerites and basalts of Dargo High Plains, &c., &c.
Pleistocene and Recent	Sand and gravel beds to 800 ft. above sea level; clay terraces along rivers and lakes; sand dunes, swamps, flooded lands, and river gravels now forming.

This is followed by a table of the Igneous rocks.

R. E., Junr.

Jack, R. L. Report on the Geology and Mineral Resources of the District between Charters Towers Gold fields and the Coast [N. Queensland]. Pp. 28; maps and sections. Fol. *Brisbane*.

Arranged under the following headings :—1. Alluvium; 2. Post-Tertiary; 3. Tertiary (including Basalt); 4. Sandstone, &c., capping the hills between the Houghton and Kirk Rivers; 5. U. Devonian, with Table of strata of Lower Basin of Star River; 6. M. Devonian or Dalrymple and Botswood; 7. L. Devonian of Burdekin Downs; 8. Pre-Devonian (Silurian) Metamorphic; 9. St. Patrick Block, giving sections of the Reef; 10. Charters Towers gold field, with map of principal reefs.

The geological sketch maps are of the district between Charters Towers gold field and the coast (2 miles to an inch), and of the Charters Towers gold field (40 chains to an inch).

R. B. N.

——. Report to the Honourable the Minister for Mines on the Bowen River Coalfield, with a Geological sketch map. Pp. 44. Fol. *Brisbane*.

Gives a section across the Bowen River coal field, and describes the geology of the district under the headings :—*a.* Plutonic and Metamorphic rocks; *b.* Volcanic agglomerate; *c.* Lower series of coal field; *d.* Interbedded Porphyrites and Basalts; *e.* Middle (marine) series of the coal field, with six sections; *f.* Upper (mainly freshwater) series of the coal field, with sections and plans; *g.* Sandstones, &c. of Mount Leslie and the Red Cliff range. Contains notes on the fossils and age of the coal-bearing formation. The majority of the Mollusca indicate a Carboniferous age, while a few are Devonian, and one has been regarded

as Cretaceous. The plants are Mesozoic. Analyses of samples of coals from the various seams are given.

Appendices : i. References to the Literature ; ii. Reports of the Bowen River Coal Association. R. B. N.

Jack, R. L. Preliminary Report relating to the Geological Features of part of the Coast Range between the Dalrymple and Charters Towers Roads (Northern Queensland). Pp. 3. Fol. *Brisbane*.

Jenkins, C. On the Geology of Yass Plains. *Proc. Linn. Soc. N. S. Wales*, vol. iii. pp. 21-32, 216-221, pls. 6, 17 (fossils).

Gives the order of deposition, dividing the sedimentary rocks into "Yass beds" and "Hume beds," both U. Silurian. Reference is made to the chief fossils, and the igneous rocks are noticed.

Describes the remains of a *Bronteus*, and notes the occurrence of other forms. R. E., Junr., & R. B. N.

Kjerulf, Th., and W. C. Brögger. Zinnsteinvorkommiss aus New South Wales. [Tin Ore from New South Wales.] *N. Jahrb.* pp. 566, 567.

Macklin, H. P. Deflection of Shingle-bearing Currents and Protection of River Banks by Druslin's Floating Log Dams. *Trans. N. Zealand Inst.* vol. xi. pp. 144-146, pl. ii.

Refers to the plain of the Wairau in the province of Marlborough as a tract of alluvial country, surrounded N. & W. by mountains of metamorphic and Palæozoic rocks, and in the S. by low hills of marine Tertiary Drift. R. B. N.

Martin, Josiah. The Geysers, Hotsprings, and Terraces of New Zealand. *Pop. Sci. Rev.* n. s. vol. iii. pp. 366-384, pl. ix. (views), two sketch maps.

Describes the geysers, sinter terraces, solfataras, fumaroles, mud volcanoes, hot springs, and alum-caves in various districts. Gives analyses of mineral waters by Prof. W. Skey, from *Trans. N. Z. Inst.* 1877. R. B. N.

Maxwell, J. P. On some of the Causes which operate in Shingle-bearing Rivers in the Determination of their Courses and in the Formation of Plains. (Abstract.) *Trans. N. Zealand Inst.* vol. xi. pp. 524, 525.

The Canterbury plains were formed by the action of the rivers transporting shingle from the ranges and depositing it in their lower courses and at their mouths. Remarks are also made by Dr. Hector. R. B. N.

Meunier, Stanislas. L'Australie; la géologie du Queensland.
[Geology of Queensland.] *La Nature*.

Michie, Sir A. Readings in Melbourne; with an Essay on the
Resources and Prospects of Victoria, for the Emigrant and Uneasy
Classes. Pp. 328. 8vo. *London*.

Mining information, p. 165.

Newbery, J. C. Formation of *Hyalite* by the action of Ammonia.
Trans. R. Soc. Victoria, vol. xv. pp. 49-51.

Contains some geological remarks connected with the decay of building stones used in Melbourne.

Pond, J. A. Notes on a Salt Spring near Hokianga. *Trans. N. Zealand Inst.* vol. xi. pp. 512-514.

The water from the Hokianga spring contains a greater amount of alkaline chlorides than any other in the Colony. Solid matter equals 2937.558 gr. per gal. Probably occurs in a clay-slate formation. That from a hot spring, Motuhora (Whale Is.), Bay of Plenty, has a temperature of 198° F.; it is acrid and clear.

R. E., Junr.

Scouler, G. The Geology of the Hundred of Munno Para. Part i.
The Newer Tertiary Rocks. *Trans. Phil. Soc. Adelaide* for 1878-79, pp. 60-70.

Treats of recent Alluvium and Travertine; and of the Drift or Pliocene, which occupies nearly three fourths of the whole area.

Smith, S. P. Notes of a Traditional Change in the Coast line at Manukau Heads. *Trans. N. Zealand Inst.* vol. xi. pp. 514-516.

Tradition places the coast line much further seaward than now. Gives reasons for believing this to be true.

Stephens, T. Notes of a Visit to the "Hot Spring," near Southport, in 1877. *Papers R. Soc. Tasm.* for 1878, pp. 63, 64.

The temperature of this spring is 83° 5'. Suggests that this heat may arise from the decomposition of pyrites or other metalliferous products in the rocks through which the waters pass.

R. B. N.

Stephens, W. J. President's Address. *Proc. Linn. Soc. N. S. Wales*, vol. iii. pp. 414-443.

Contains remarks on the "Geology of the Sedimentary Deposits of New South Wales," by the late Rev. W. B. Clarke.

Tate, Prof. R. The Anniversary Address of the President, Philosophical Society of Adelaide. "Leading Physical Features of South

Australia." *Trans. Phil. Soc. Adelaide* for 1878-79, pp. xxxix-lxxv.

Tate, Prof. R. The Natural History of the Country around the Head of the Great Australian Bight. *Trans. Phil. Soc. Adelaide* for 1878-79, pp. 94-128, pl. 4 (sections).

Contains a geological account of Bunda Plateau, giving a section of Wilson's Bluff, with a list of fossils. Treats of the Newer Tertiaries around the Head of the Great Australian Bight. R. B. N.

Taylor, Norman. On the Cudgegong Diamond Field, New South Wales. *Geol. Mag.* dec. ii. vol. vi. pp. 399-412, 444-458; two sketch sections.

The diamonds occur in Tertiary Drifts. The older rocks of the country are Silurian, Devonian, Carboniferous (with coal-seams and *Glossopteris* shales), Mésozoic rocks, and granite. In these no diamonds have been found, nor do they occur in the modern river-drift. The diamond-bearing drifts are usually outlying hills capped with basalt. The origin of the diamonds is doubtful; it is suggested that they were formed in the drifts. The occurrence of gold, topaz, corundum, and other minerals is recorded, and analyses of magnesite, pleonaste, corundum, and ruby given. W. K.

Tepper, O. Introduction to the Cliffs and Rocks at Ardrossan, Yorke's Peninsula. *Trans. Phil. Soc. Adelaide* for 1878-79, pp. 71-79, pls. 1-3 (sections).

Contains the following synopsis of rocks occurring in this locality:—Newer Tertiary: Surface deposits; Limestone concretions, on lower levels; Travertine, on higher levels; Clays and Gravels. Older Tertiary: Ardrossan Clays and Sands; Turritella Grits; Mulooowurtie Clays. L. Silurian: Ardrossan Sandstone; Parara Limestone, fossiliferous; White and yellow unfossiliferous siliceous limestone. Pre-Silurian: Ardrossan Marbles; Micaceous Slates; Talcose, Chloritic, and Hornblendic Schists. Plutonic: Granite. R. B. N.

Ulrich, G. H. F. Die Zukunft der Goldausbeute in Australien. [The Future of the Gold-Industry in Australia.] *N. Jahrb.* pp. 347-356; 3 woodcuts.

A review of the present position and future prospects of Gold-mining in Victoria, N. S. Wales, Queensland, S. Australia, Tasmania, and N. Zealand. On the whole, gold-mining is not a declining industry; for though the production of Victoria is diminishing, that of the other Colonies will probably increase in a greater ratio. F. W. R.

Wilkinson, [C. S.]. [Notes on the occurrence of *Canis dingo* or Wild Dog of Australia in Pleistocene Tertiary and Quaternary deposits.] *Zeitschr. Ethn.* Bd. xi. pp. 189, 190.

In cave in Pliocene basalt near Gisborne; caves in limestone near Wellington; cave near Mt. Macedon; Pleistocene beds at Lake Simboon, Victoria, and in other localities. W. T.

Mineral Statistics of Victoria for the year 1878. Presented to both Houses of Parliament by His Excellency's command. Fol. *Melbourne*.

SUPPLEMENT FOR 1878.

Anon. An Australian Gold Field. *Min. Journ.* vol. xlviii. p. 871. [1878.]

Refers to the Egerton and Black Horse United mines, and the difference between the two great sources of gold, the alluvial and quartz digging. R. B. N.

——. The Victorian Gold Fields. *Iron*, vol. xi. p. 267. [1878.]
Brief note on recent workings.

——. Mining in Australia. *Iron*, vol. xii. p. 206. [1878.]
Discovery of rich stone at Hawkins Hill, and of silver-ore at Tenterfield, New England.

Barnard, Dr. On Fossil Fruits from the 'Black Lead,' Gulgong, N. S. Wales. *Papers and Proc. R. Soc. Tasm.* for 1877, p. 97. [1878.]

These fruits were embedded in the "wash dirt" of the "Black Lead," Gulgong, at a depth of 150 ft., associated with leaves and wood. Immediately above the wash dirt occurs a hard basalt, 15 ft. thick; above this are clays and gravels alternating. R. B. N.

Bérangier, T. La Nouvelle Nursie. Histoire d'une Colonie Bénédictine dans l'Australie Occidentale (1846-1878). Pp. 385. 8vo. Paris, 1878.

Geology and Mineralogy, p. 335.

Smyth, R. B. The Aborigines of Victoria : with Notes relating to the Habits of the Natives of other parts of Australia and Tasmania. Compiled from various sources for the Government of Victoria. 2 vols. 8vo. *Melbourne and London*, 1878.
Stone Implements and Geological Notes, vol. i. p. 357.

Woods, Rev. J. E. T. On the Extratropical Corals of Australia. *Proc. Linn. Soc. N. S. Wales*, vol. ii. pp. 292-341, pls. iv.-vi. [1878.]

Comparisons are introduced referring to the fossil forms. *Trochocyathus Victorice* and *Sphenotrochus variolaris*, fossil forms, are recorded as now living. R. B. N.

See also :—

Hector, Dr. Map and Sections of N. Zealand : *post*, VERTEBRATA, under **Owen**.

Nicholson, Prof. H. A., and R. Etheridge, Junr. Geological Notes, N. Queensland : *post*, INVERTEBRATA.

8. OCEANIA AND VARIOUS ISLANDS.

Sub-Editor R. B. NEWTON, F.G.S.

Anon. Coal Mines in the Philippine Islands. *Coll. Guard.* vol. xxxvii. p. 68.

Mentions a coal mine being worked in the province of Cebu.

——. Reported Discovery of Coal at Kangaroo Island [S. Australia]. *Coll. Guard.* vol. xxxvii. p. 984.

D'Albertis, L. M. Journeys up the Fly River and in other parts of New Guinea. *Proc. R. Geogr. Soc.* n. ser. vol. i. no. 1, pp. 4–16, map.

Notifies the subsidence which has brought about the separation of New Guinea from Australia, and remarks that, from the evidence of “fossil remains of marine animals and corals of recent date,” a slow process of rising has recommenced. R. B. N.

Forbes, H. O. Notes on the Cocos or Keeling Islands. *Proc. R. Geogr. Soc.* n. ser. vol. i. no. 12, pp. 777–784, map.

Notes some of the physical changes which have occurred since Darwin's visit in 1836. Indications of recent elevation are mentioned.

Garnier, Jules. La Nouvelle-Calédonie à l'Exposition Universelle de 1878. *Bull. Soc. Géogr. Paris*, sér. 6, t. 17, p. 145.

Refers on p. 150 to the specimens of gold, copper, and nickel which have been discovered.

Johnston, R. M. Note on certain Tertiary and Post-Tertiary Deposits on Flinders, Barren, Badger, and other Islands in Bass's Straits. *Papers R. Soc. Tasm.* for 1878, pp. 41–50, sections.

Arranged under the following headings:—Sand dunes and elevated beaches; the Helicidæ sandstone (with remarks by Prof. Tate, giving a list of Pleistocene Fossils from Badger and Cape Barren Islands); Oyster-Bed deposit; Raised Beaches; Recent Basaltic Tuffs; Turritella Limestone. Makes observations favouring the theory of evolution.

R. B. N.

Layard, L. Notes of a trip to Tanna, one of the New Hebrides Group. *Land and Water*, vol. xxvii. pp. 16, 40.

Gives the results of observations on the Tanna volcano in 1878, and the upheavals of the Harbour of Port Resolution, that on January 10 being 20 feet, on February 11, 10 feet, and a third at the end of April 8 feet. G. H. K.

Martin, K. Phosphoritische Kalke von der westindischen Insel Bonaire. [Phosphoritic Lime from Bonaire Island, West Indies.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 473-479.

Milne, Prof. John. A Cruise among the Volcanos of the Kurile Islands. *Geol. Mag.* dec. ii. vol. vi. pp. 337-348, pl. ix. (sketch map).

The Kurile Islands form part of a long chain of volcanic islands. They are described in the paper. Nine of the cones are still active, and the forms of the volcanoes are well preserved. The principal rock is augitic andesite. W. K.

Vélain, Ch. Mission de l'île Saint-Paul. Recherches géologiques faites à Aden, à la Réunion, aux îles Saint-Paul et Amsterdam, aux Seychelles. *Inst. France, Acad. Sci. Recueil de Mémoires, Rapports et Documents relatif à l'observation du passage de Vénus sur le Soleil*, tome ii. part 2, no. 2, pp. 51-460, 25 pls., 4 geological maps, sections. 4to. Paris.

Details the structure, mineralogy, and present volcanic action.

PHYSICAL GEOLOGY.

Sub-Editor F. DREW, F.G.S., Assoc. R.S.M.

1. PHENOMENA OF UNDERGROUND ORIGIN.

Anon. A Deep Artesian Well. *Analyst*, no. 45, p. 237. From *Brewers' Guardian*.

Note of well at Buda Pesth, 3200 feet deep, yielding water of 165° temperature.

Chief Commissioner of Assam. Record of the Occurrence of Earthquakes in Assam during 1878. *Journ. As. Soc. Bengal*, vol. xlviii. pt. ii. pp. 49-55.

Between 70 and 80 records of earthquakes, showing place, time, duration, apparent direction, and damage done.

Church, J. A. The Heat of the Comstock Mines. *Trans. Amer. Inst. Min. Eng.* vol. vii. pp. 45-76. See GEOLOGICAL RECORD for 1878, p. 188.

——. Underground Temperatures on the Comstock Lode. *Amer. Journ.* ser. 3, vol. xvii. pp. 289-296.

Close, Rev. M. H. Concerning the Extent of Geological Time. *Rep. Brit. Assoc.* for 1878, p. 548.

Crosby, W. O. How the appearance of a Fault may be produced without fracture. *Geol. Mag.* dec. ii. vol. vi. pp. 296-298.

The growth of a coral-reef being faster than the accumulations outside the reef, if its upward growth ceased (from the area no longer being depressed) and then the outside layers became levelled up, there might be, at the junction of the two sorts of deposit when afterwards exposed, the appearance of a fault, from the sudden lateral change from one to the other. F. D.

Danton, —. Sur le métamorphisme des roches. [On the Metamorphism of Rocks.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 584-588.

Darwin, G. H. On the Precession of a Viscous Spheroid. *Rep. Brit. Assoc.* for 1879, pp. 482-485.

Gives an outline of reasonings as to the effect of tidal influences on the obliquity of the ecliptic and the lengths of day and month, &c., with

certain degrees of viscosity ; compares his results with Sir W. Thompson's. F. D.

Daubrée, Prof. A. *Etudes synthétiques de Géologie expérimentale.* [Experimental Geology.] 8vo. Pp. iii, 1-828, figs. 181. *Paris.*

A collected account of experimental researches in two parts:—I. Relating to mundane phenomena ; II. Cosmical. To throw light on the history of metalliferous deposits experiments are noted on the artificial production of tin-oxide, quartz, titanite oxide, apatite, topaz, &c., the contemporaneous formation of metalliferous minerals in the warm springs of Bourbonne-les-Bains, as copper-pyrites, siderite, vivianite, chrysocolla, phosgenite, cerussite, anglesite, and on the artificial production of hausmannite. The magnetipolar natural platinum was imitated by artificial admixture of iron and platinum. As regards metamorphism, light is thrown on the production of silicates by the observed contemporaneous formation of zeolites in the warm springs of Plombières, &c. To prove the possibility of the capillary entrance of water into porous rocks against the action of steam an experiment is described, and its applicability to volcanic phenomena inferred. Next mechanical problems, as to the formation of gravel and silts, contortions and faults in rocks, schistosity and fan-structure in mountains, &c., are illustrated by experiments.

In Part II. Meteorites are described and classified. Artificial imitations, comparison with mundane peridotite rocks, pits on meteorites imitated by action of gases from ignited dynamite, &c., are a few of the subjects treated of in explanation of their origin and affinity to geological substances. E. B. T.

—. *Expériences relatives à la chaleur qui a pu se développer par les actions mécaniques dans les roches, et particulièrement dans les argiles.* [Heat developed mechanically in Rocks, especially in Clays.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 531, 532.

Downes, Rev. W. The Instability of Land. *Belgravia*, vol. xxxix. pp. 148-158.

Drinker, H. S. The Butler Mine Fire Cut-off. *Trans. Amer. Inst. Min. Eng.* vol. vii. pp. 159-161.

The "Cut-off" passes through the débris of an old fire. Investigation showed that where the old fire had met with a pillar of solid coal in place the coal was simply calcined on its surface, but in all cases the overlying slate rock was calcined throughout. T. V. H.

Dunker, E. Ueber die Temperaturen im Bohrloche I. zu Sperenberg. [Temperatures in No. 1 Boring at Sperenberg.] *N. Jahrb.* Heft ii. pp. 116-126.

Everett, Prof. Eleventh Report of the Committee to investigate the Rate of Increase of Underground Temperature. *Rep. Brit. Assoc.* for 1878, pp. 178-183.

Describes the mode of observing rock-temperature in the St. Gothard Tunnel. Notes that a discussion carried on in Germany has ended in the rejection of the hypothesis of a retarded rate of increase. Records observations at Pontypridd and at Bootle. Suggests a special method of prosecuting the inquiry by filling up the bore-hole so as to bring it back nearly to its original condition, and observing its temperature through the aid of electricity. F. D.

——. Twelfth Report of the Committee to investigate the Rate of Increase of Underground Temperature. *Rep. Brit. Assoc.* for 1879, pp. 40-46.

Further observations made in the St. Gothard Tunnel are recorded. The mean increase in the tunnel is 1° F. for 88 ft. of depth, measured from the surface directly over. The boring at Bootle had been completed, and shows an increase of only 1° for 154 ft. Observations by **E. Wethered** at Kingswood Collieries in Bristol show an increase of 1° F. in about 68 ft. A table of observations at the Kentish Town well shows a temperature of $67^{\circ}06$ F. at 1000 ft. F. D.

——. On some Broad Features of Underground Temperature. *Rep. Brit. Assoc.* for 1879, pp. 345, 346.

Explains the relation of the *temperature-gradient* beneath the surface to the form of the ground and to the conductivity of the rocks. Notes the methods of observation. F. D.

Fuchs, C. W. C. Die vulcanischen Ereignisse des Jahres 1878. [Volcanic Phenomena of 1878.] *Min. petr. Mitth.* pp. 97-125.

Volcanic outbursts noted, then 103 earthquakes. The Rhine earthquake of 26 August is noticed more fully.

Heim, A. [Mechanism of Mountain-formation.] *N. Jahrb.* Heft i. pp. 62-66.

An analysis of his book on the subject. See GEOLOGICAL RECORD for 1878, p. 76.

Herschel, Prof. A. S., and Prof. G. A. Lebour. Fifth Report of a Committee on Experiments to determine the Thermal Conductivities of Rocks. *Rep. Brit. Assoc.* for 1878, pp. 133-146.

Describe an indirect method of determining conductivities, in which a knowledge of the thermal capacity of the substance is needed. Give a

table of Specific Gravities, Porosities, Thermal Capacities, Conductivities, and Resistances of about 100 varieties of rock. F. D.

Herschel, Prof. A. S., and Prof. G. A. Lebour. Sixth Report of a Committee on Experiments to determine the Thermal Conductivities of Rocks. *Rep. Brit. Assoc.* for 1879, pp. 58-63.

Experiments were made to compare the results of the method adopted by the Committee with those obtained by Prof. Stefan's method; a table of comparisons is given. More complete experiments were made on certain very porous rocks, and the results are tabulated. An error has been discovered in the computation of absolute conductivity (from the beginning), for which a correction should be applied to the published tables. F. D.

Knipping, E. Verzeichniss von Erdbeben wahrgenommen in Tokio von Sept. 1872 bis Nov. 1877. [Earthquakes—Tokio, 1872-1877.] *Mith. Ges. Nat. Ostasiens*, Heft xiv.

Lapparent, A. de. L'Origine des Inégalités de la Surface du Globe. [Origin of Surface Inequalities.] *Rev. Quest. Sci.*, July.

Lehmann, Dr. J. Ueber die mechanische Umformung fester Gesteine bei der Gebirgsbildung und die sich gleichzeitig vollziehenden stofflichen Veränderungen. [Mechanical Deformation of Rocks and Contemporaneous Material Changes.] *Verh. nat. Ver. preuss. Rheinl.* Bd. xxxvi. *Sitz.* pp. 331-344.

Longo, A. Osservazioni sopra alquanti squarci della memoria del Sig. Roberto Mallet "Volcanic Energy." *Atti Ac. Gioen. Sci. Nat.* ser. 3, t. xiv. p. 119.

Margarit, J. Erupciones volcánicas. *Revista de Canarias*, May.

Milne, Prof. J. Further Notes on the Form of Volcanos. *Geol. Mag.* dec. ii. vol. vi. pp. 506-514.

Refers to a paper (see GEOLOGICAL RECORD for 1878, p. 192) in which he endeavoured to show that the profiles of the sides of volcanoes are logarithmic curves; confirms this conclusion from observations among the Kurile Islands; gives the results of experiments on the forms of heaps of various materials; examines the causes that may have given to volcanoes their characteristic curvature; concludes that these are very varied and irregular in their relations to one another, and that to unravel their complications is hopeless. F. D.

Morris, William. The Temperature of the Earth within. *Rep. Brit. Assoc.* for 1878, pp. 456, 457; and *Compt. Rend.* t. lxxxvii. p. 437 (1878).

Proposes to place at the bottom of a bore-hole an uncompensated chronometer actuated from the surface electrically, and so maintained permanently in motion; this in its turn to control electrically a clock at the surface, which will thus register the results of temperature below.
W. T.

O'Reilly, Prof. J. P. On the Correlation of Lines of Dislocation on the Globe, and particularly of Coast Lines. *Rep. Brit. Assoc.* for 1878, p. 547.

The dominating angles in the blocks of the Giant's Causeway basalt are 110° and 70° ; in triangular columns from Fair Head 70° and 40° . These angles frequently occur between geological boundary lines, and directions of coast and mountain chains on various maps.
F. D.

Perry, Prof. J., and Prof. W. E. Ayrton. On a neglected Principle that may be employed in Earthquake-measurements. *Phil. Mag.* ser. 5, vol. viii. pp. 30-50, plate.

"The centre of mass of a body fastened by means of springs inside a metal box rigidly attached to the earth, has in certain cases motions with respect to the box itself which in miniature, with great exactitude, represent the motions of a point of the box during the earthquake." The mathematical reasoning is given at length. The plate shows the idea of the construction of a seismometer on the above principle.
F. D.

Schmidt, J. F. J. Studien über Erdbeben. Ed. 2. Pp. 360; 6 plates. 8vo. *Leipzig.*

Includes catalogues of earthquakes, with date and place of occurrence &c.

Spring, W. Essai d'une Méthode pour déterminer l'Époque relative du Plissement des Couches d'un Terrain. [Method of determining the Relative Age of Folds.] *Ann. Soc. Géol. Belg.* t. vi. pp. 45-50, see also pp. ciii-cv. (Chiefly discussion.)

If a rock has been folded after consolidation the convex part must have undergone dilatation and the concave part compression, and this should cause a difference in density. If, therefore, specimens from these two parts of any rock show such difference we have the elements of a solution of the problem. Two experiments on folded Devonian limestone are noted.
W. W.

Stapff, Dr. F. M. Zur Mechanik der Schichtenfaltungen. [Mechanics of Rock-folding.] *N. Jahrb.* pp. 292-300, 792-814, woodcuts.

A mathematical and mechanical discussion, with special reference to the rocks of the St. Gothard Tunnel.

Stelzner, A. [Theories of the Formation of Mineral Veins.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 644-648.

Is opposed to the theory that lateral secretion will account for all the phenomena of veins, and gives reasons to show that metals come often from below. E. B. T.

Thomson, Prof. James. On the Jointed Prismatic Structure in Basaltic Rocks. *Trans. Geol. Soc. Glasgow*, vol. vi. pt. i. pp. 95-110, pls. ii.-iv.

The division into prisms has arisen by splitting, through shrinkage in cooling; the spheroidal structure is not due to concretionary action, but to decomposition penetrating inwards; and the "cross joints" are fractures that have commenced in the centre of the column and have advanced to the outside as a circle increasing in diameter. Gives many instances of each kind of structure in the basalt of the Giant's Causeway. J. G. G.

Walker, J. T. The Evidence afforded by the Indian Pendulum Observations on the Constitution of the Earth's Crust and on Geodesy; being an Extract from the Preface to vol. v. of the Account of the Operations of the Great Trigonometrical Survey of India. *Proc. As. Soc. Bengal*, pp. 246-255 (pp. xxviii-xxxiv).

Discusses the variations in gravity proved by the pendulum experiments made in India, and draws attention to Archdeacon Pratt's hypothesis to account for them, namely that when there is a raising of any portion of the earth's crust there is a counterbalancing attenuation of matter beneath it to a depth of, may be, 50 times the height of the protuberance. These views are confirmed by the measurement of two longitudinal arcs across S. India, which point to denser matter under the bed of the ocean than under the land. F. D.

Waters, W. Inquiries concerning a Change in the Position of the Earth's Axis. *Mem. Lit. Phil. Soc. Manch.* ser. 3, vol. vi. p. 110. See GEOLOGICAL RECORD for 1876, p. 193.

Woodward, H. B. The Origin of Mountains. Short abstract in *Report of Science Gossip Club, Norwich*, p. 13.

SUPPLEMENT FOR 1874-1878.

Bombicci, L. Sull' origine delle Montagne. [Origin of Mountains.] *Boll. Club alp. Ital.* 1877.

Chancourtois, A. E. B. de. Imitation automatique des chaines de montagnes sur un globe, d'après le principe de la théorie des soulèvements. *Compt. Rend.* t. lxxxvii. p. 81. [1878.]

Conti, D. Ueber Erdbeben bei Cosenza. [Earthquake near Cosenza.] *Zeitschr. deutsch. geol. Ges.* Bd. xxx. p. 26. [1874.]
Reprints 3 analyses of clay by **S. de Luca**, 1870.

Falb, Rudolf. Estudio sobre los templores de tierra fundado en la historia del universo. [Revolutions in the Universe.] *Val-paraiso*, 1877.—And in German, under the title 'Von den Umwälzungen im Weltall.' *Hartleben*, 1881.

3. In the depths of the earth. Earthquakes are subterraneous eruptions, the interior of the earth being incandescent matter affected by the attraction of the sun and moon. W. W.

Höfer, H. Die Erdbeben von Herzogenrath 1873 und 1877 und die herausabgeleiteten Zahlenwerthe. 8vo. *Vienna*, 1878.

Hornes, R. Das Erdbeben von Belluno am 29 Juni 1873 und die Falb'sche Erdbeben-Hypothese. [Earthquake of Belluno and Falb's Earthquake-theory.] *Mitth. nat. Ver. Steiermark*, 1877.

Palmieri, L. Intorno ad un piccolo terremoto accaduto in Napoli il 18 Febbraio. *Rend. R. Ac. Sci. Napoli*, 1876.

Rossi, M. G. de. Fenomeni Aurorali e Sismici nella Regione Laziale confrontati coi terremoti di Casamicciola, Norcia e Livorno. [Seismic Phenomena of Latium compared with those of Ischia, Norcia, and Leghorn.] *Boll. Vulc. Ital.* 1875.

Rossi, M. S. Terremoti presso l' Etna dal 7 al 20 Gennaio 1875. *Boll. Vulc. Ital.* anno ii. 1875.

Serpieri, A. Il terremoto di Runini della notte 17-18 Marzo 1875 e considerazioni generali sopra varie teorie sismologiche. [Earthquake of Runini, March 1875, and Review of Seismological Theories.] Pp. 95. *Urbino*, 1878.

Siemens, W. Physikalisch-mechanische Betrachtungen veranlasst durch einige Beobachtungen der Thätigkeit des Vesuvs im Mai 1878. *Berlin*, 1878.

Signorile, G. Nuovi studi e ricerche sull' origine delle pozzolane vulcaniche e sulle cause della loro idraulicità con un confronto delle pozzolane di Roma e Napoli, nell' interesse dei lavori marittime. [Origin of Puzzuolanas and of their Hydraulic Character, with a Comparison for Marine Works of those of Rome and Naples.] *Giornale del Genio civile*, vol. xv. pp. 301–317. [1877.]

Imperfectly entered in the GEOLOGICAL RECORD for 1877, p. 192.

Suess, E. Ueber die Erdbeben des südlichen Italien. [Earthquakes of S. Italy.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xxxiv. 1875, p. 1 ; 2 pls.

See also :—

Groddeck, Dr. Alb. von. On Ore Deposits : *post*, APPLIED GEOLOGY, p. 229.

Pettersen, K. Slow Secular Fall of Continental Masses : p. 94.

2. SURFACE PHENOMENA.

Anon. Glacial Epochs and Warm Polar Climates. *Quarterly Review*, no. 295, pp. 223-254.

A review of theories as to the cause of changes of climate; accepts the view that they are due to varying eccentricity of the earth's orbit and precession of the equinoxes. F. D.

Austin, C. E. On the Distribution of Boulders by other agencies than that of Icebergs. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proc.* p. 3.

Believes that the boulders of Sweden and Prussia are solid nuclei of decomposed granite.

Bailey, A. On the Overflow of a Peat-bog near Port Stanley in East Falkland. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proc.* pp. 96, 97.

9 or 10 acres of bog were affected; the peat from that area moved down in a flow several feet in height at 4 or 5 miles an hour.

Campbell, J. F. Glacial Periods. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 98-137.

Discusses the evidences of a Glacial Period; records observations made on a journey through India and in Europe on returning; concludes that there was no *general* Glacial Period and no Ice-cap. F. D.

Cole, Rev. E. M. On the Origin and Formation of the Wold Dales. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 128-140, pl. x. (plans).

The gravels on the sides of the valley must have been deposited by the sea or by ice; subærial denudation has affected them little. The dales are the paths of former glaciers, but the inequalities of surface were originally produced during elevation. Calculates the amount of chalk chemically removed yearly. W. W.

Erdmann, E. Bidrag till kännedomen om rullstenars bildande. Ett geologiskt experiment. [Mode of Origin of Pebbles. A Geological Experiment.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 407-417, plate.

The experiment was made to find the time needed for moving water to transform rock fragments from angular to rounded shapes, and how far they must be rolled. Many angular fragments of granite, limestones, sandstones, and clay-slate were placed in a large wooden chest with stone at the bottom, so as to resemble the bottom of a river. The chest was made to oscillate, so that the angular material moved from end to

end, in water. After 12-15 hours (1220 oscillations) the pieces of Rhætic sandstone were transformed into pebbles, their weight being lessened 40 per cent. After 20 more hours also the other rocks were rounded; their weight being lessened 7 per cent. for granite, 21 to 30 p. c. for limestone, 16 p. c. for Cambrian sandstone, and 37 p. c. for clay-slate. Inferences are drawn as to the Glacial and Post-Glacial sea-lines and old beaches.

E. E.

Fisher, Rev. O. Climatic effects of the Present Eccentricity. *Nature*, vol. xx. pp. 577, 578.

Discusses a statement of Croll's that "the temperature of a place, other things being equal, is proportional to the heat received from the sun."

C. E. R.

Haughton, Rev. Prof. S. On the former Climate of the Polar Regions. *Geol. Mag.* dec. ii. vol. vi. pp. 91-93.

Maintains his theory that the Tertiary plant-remains found in polar regions imply 'Lombardic' heat, but not 'Lombardic' light, and that their positions are such as to make the hypothesis of the change of position of the pole untenable.

F. D.

Hoefler, Prof. H. Gletscher- und Eiszeit-Studien. [Glacier and Glacial-period Studies.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. i. pp. 331-367; 1 tab.

The line between névé and glacier (Firmlinie) lies at half the height between the lower end of the glacier and the collecting névé ridge (Firnkamm). This result agrees with observations made on several glaciers in the Gross Glockner, Petzthal, and Monte Rosa groups, in Scandinavia, and in the Himalayas. This result is used in calculating the height of the lower line of the névé in the Etsch Glacier in the Glacial period, 4026 Paris feet being arrived at, or about 4000 ft. lower than now, corresponding to a mean annual temperature 5°-6 R. lower than now. The cold of the glacial period was not due to the increased height of the Alps, but mainly to the great amount of cold sea where is now land in N. Europe.

E. B. T.

Hunt, Dr. T. S. The Geological Relations of the Atmosphere. *Rep. Brit. Assoc.* for 1878, pp. 544, 545.

Enquires whence came the great amount of carbonic acid fixed in the earth's crust in carbonates; agrees with the hypothesis of a cosmical atmosphere, and suggests that the laws of diffusion and static equilibrium afford an answer. Maintains that the greater amount of carbonic acid in affecting radiation will account for the higher temperature of the earth's surface before Miocene times.

F. D.

Kendall, J. D. The Formation of Rock-basins. *Quart. Journ. Geol. Soc.* vol. xxxv. *Proc.* p. 105.

Suggests that they are due to the action of falling water in the crevasses of ancient glaciers.

Julien, A. A. On the Geological Action of the Humus Acids. *Proc. Amer. Assoc.* vol. xxviii. pp. 311-410.

Treats the subject under the following heads:—Materials yielding Humus Acids; Acids existing in Humus; Conditions of Existence; Natural Solutions; Action within Loose Deposits, Sands and Gravels; Action upon Clays; Alteration of Fossils; Changes within the Deep-sea Ooze; Erosion of Limestone; Porous Sedimentary Rocks: Action upon Slates; Disintegration of Crystalline Rocks; Theory of Subterranean Decomposition; Action within Veins; Action on Guano Deposits; Influence upon Minerals; Relationship to Amorphous Silica; Periods of Special Activity. Gives a map, showing the Geographical Distribution of the Humus Layer, and tables of analyses. E. W.

McDakin, —. On Chalk, its Origin and Properties. *Rep. Kent Nat. Hist. Soc.* pp. 33, 34.

The formation of chalk, its power of absorbing water and of being much excavated without needing support, are considered.

Oldham, R. D. On the Modulus of Cohesion of Ice, and its bearing on the Theory of Glacial Erosion of Lake Basins. *Phil. Mag.* ser. 5, vol. vii. pp. 240-247.

Gives the result of experiments in crushing ice and in changing its form. These show that, under a pressure of a column of its own substance 370 ft. in height, ice must yield, while with 960 ft. it would be crushed. With these figures works out formulæ from which to determine whether it would be possible for a glacier to scoop out a rock-basin of given dimensions, applying them particularly to the case of the Lake of Geneva. Concludes that no lake-basin more than 700 ft. deep or 5 miles long could owe its origin to glacial erosion, and that the true limits are probably not one tenth of these quantities; that no glacier could be pushed *en masse* over a plain for more than 5 miles; that no ice-cap could travel *en masse* over large areas independent of the form of the ground. F. D.

Reade, T. M. On the Geological Significance of the Challenger Discoveries. *Proc. Liverpool Geol. Soc.* vol. iii. pt. iv. pp. 332-341.

The bottom temperature of great oceans is uniformly at 35° Fahr. below 2000 fathoms and down to 3000. Cold zones are reached nearer the surface at the equator than in more northern latitudes. The climate of the poles is ameliorated by the spread of ice-cold waters over the Atlantic and Pacific, whose great depths are important factors in equalizing the temperature of the globe. The average time of deposition of a foot of calcareous sediment is 20,000 years, of Red Clay perhaps

ten times longer. Ocean depths over land proved by the continuity of animal life. C. E. R.

Reade, T. M. Chemical Action in its Geological Aspect. *Sci. Goss.* No. 169, pp. 6, 7.

Speaks of the solid materials dissolved and carried away by running water. Notices the decomposition of rocks, especially limestone, and the effect of such action on natural scenery. A. J. J.-B.

SUPPLEMENT FOR 1876, 1877.

Baretti, M. Morene antichi e moderne. [Old and Modern Moraines.] *Turin*, 1876.

Jentzsch, A. Ueber Baron v. Richthofen's Lösstheorie und den angeblichen Steppencharakter Centraleuropa's am Schlusse der Eiszeit. [Richthofen's Theory of the Loess, and the alleged Steppe Character of Central Europe at the Close of the Ice Age.] *Schrift. phys.-ökon. Ges. Königsberg*, Jahrg. 18, p. 161. [1877.]

See also :—

Mackintosh, D. Dispersion of Boulders: p. 24.

Roberts, J. Filtration of Sea-water through Sandstones: under De Rance, p. 11.

3. ROCK-FORMATION.

Berthoud, Prof. E. L. On the Origin and Formation of Coal.
Kansas City Rev. Sci. Ind. vol. iii. pp. 23-28.
 Reviews theories.

Daubrée, A. Sur l'origine du phosphore dans ses différents gisements, et en particulier dans ceux du Quercy. [Origin of Phosphorus in Deposits, especially in those of Quercy.] *Compt. Rend. Assoc. Franç.* pp. 544-546.
 Thinks it not of organic origin.

Frémy, —. The Formation of Coal. *Coll. Guard.* vol. xxxviii. p. 52.

Göppert, Prof. Ueber Kohlenbildung auf trockenem Wege bei gewöhnlicher Temperatur. [Formation of Coal in the Dry Way at Ordinary Temperatures.] *Jahresb. Schles. Ges.* pp. 186, 187.

Jones, Prof T. R. Limestones and other Calcareous Rocks. 9th *Ann. Rep. Wellington Coll. Nat. Sci. Soc.* pp. 20-22.
 Note of a lecture on the formation of limestone by chemical and by organic processes.

Kuntze, O. [How the Primitive Rocks are built up.] *Kosmos*, Bd. iii. Heft 3.

Reade, T. M. Limestone as an Index of Geological Time. *Proc. Royal Soc.* vol. xxviii. pp. 281-283, and *Geol. Mag.* dec. ii. vol. vi. pp. 549, 550.

Calculates that the elimination of the calcareous matter in the sedimentary crust of the earth must have occupied at least 600 millions of years.
 F. D.

APPLIED AND ECONOMIC GEOLOGY.

Sub-Editor W. TOPLEY, F.G.S., Assoc. Inst. C.E.

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Gives the slopes required for different kinds of earths and soils.

Alessandri, P. E. Le acque potabili della città e dei contorni di Livorno. 8vo. *Prato*.

Anon. [H. B. Woodward.] The Geological Survey in Norfolk. *Eastern Daily Press*, June 27.

Notes on the economic applications of the Geological Survey, with especial reference to F. J. Bennett's pamphlet on 'The Geological Survey, and its relations to Agriculture.' (See p. 228.)

——. [P. B.] La Question du Pétrole et des Huiles minérales. *Corps Grus Industr.* 6 ann. nos. 2-4, pp. 25-27, 37, 38.

——. [The Regulation of the River Rhine at St. Gallen.] *Die Eisenbahn*, May 24. Abstract in *Proc. Inst. Civ. Eng.* vol. lvii. pp. 354-357.

Describes changes in the river-course and means adopted to control them.

——. Exposition Universelle de 1878. Catalogue des Produits des Colonies Françaises. 8vo. *Paris*. Pp. 371.

——. The Coalfields of Ireland. *Coll. Guard.* vol. xxxviii. p. 865.

——. Mining and Metallurgy at the Paris Exhibition. *Engineer*, vol. xlvii. pp. 238, 327, 349.

——. Mineral Statistics, 1878. *Engineer*, vol. xlviii. pp. 187, 197, 284.

Refers to ores of metals and to coal.

——. Leamington Waterworks. Mr. G. B. Jerram, Engineer. *Engineer*, vol. xlviii. p. 217.

Includes details of the well-section.

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Refers to the works at Pont-à-Mousson.

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- Arnould, G.** Etude sur les dégagements instantanés de grisou dans les mines de houille du bassin Belge. [Outburst of Fire-damp in Belgian Coal-mines.] *Brussels*.
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- Bauerman, Hilary.** On the Progress of Mining and Metallurgy in Foreign Countries, as recorded in the Abstracts of Papers in the Proceedings, during the years 1874-78. *Proc. Inst. Civ. Eng.* vol. lv. pp. 297-307.
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- Bil, —.** [Experiments on different kinds of American and Russian Kerosine.] *Zapiski Imp. Russ. Techn. Obsht.* 1879, p. 43.
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- Davies, D. C.** Treatise on Metalliferous Minerals and Mining. *London*.

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Foschini, A. [Hydrographical Changes in Italy.—The Estuary of the Po.] *Giorn. Genio civile*, an. xvii. p. 53. Abstract in *Proc. Inst. Civ. Eng.* vol. lvii. pp. 357–361.

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Groddeck, Dr. Alb. von. Die Lehre von den Lagerstätten der Erze. [Deposits of Ores.] Pp. i–xii, 1–351, cuts 119. 8vo. *Leipzig.* 8s.

I. Forms in which ores occur, layers, veins, stocks, &c. II. Texture of ore deposits and their succession. III. Description of both bedded and vein deposits by means of certain examples taken as types. IV. Theory of genesis of ore deposits. E. B. T.

Guillier, A. Note sur l'allure des eaux souterraines. [Underground Waters.] *Bull. Soc. Agr. Sci. Sarthe*, pp. 7.

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Gives history of the use of the stones. That of Turkestan occurs in nests or veins in gneissose and schistose rocks. The quarries are on the banks of the Karakash River. The mineral is soft when dug, but hardens on exposure. It is found as boulders in sand at Irkutsk in Siberia, as pebbles on the shores of New Zealand. Its occurrence in Europe is doubtful. Jadeite occurs in China. Amazon stone from S. America, sometimes described as jade, is a felspar. Other minerals have also been so described. Six analyses given. W. T.

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Strippelmann, L. Die Petroleum-Industrie Oesterreich-Deutschlands. [Petroleum Industry of Austria.] Bd. ii. 8vo. 3 maps. *Leipzig*.

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Vilanova y Piera, Juan. Geologia agrícola. [Agricultural Geology.] Pp. 554; geol. and agronomical maps. 4to. *Madrid*. 12½ francs.

Wex, Gustav von. Ueber die Wasserabnahme in den Quellen, Flüssen und Strömen, bei gleichzeitigen Steigerung des Hochwassers in den Culturländern. II. [Second Treatise on the Decrease of Water in Springs, Creeks, and Rivers, contemporaneously with an Increase in the height of Floods, in cultivated Countries.] *Zeitschr. österr. Ing.-Arch.-Ver.* [See the GEOLOGICAL RECORD, 1875, p. 205.]

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Pp. 17-22 contain 12 tables of grasses selected for permanent pasture, according to geological formation, each formation being divided into light, medium, and heavy soil. A note on "Alluvial Deposits," p. 23, with tables of selected grasses. W. T.

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First Annual Report of the Commissioner of Mineral Statistics of the State of Michigan, for 1877-78 and previous years. 8vo. *Marquette*.

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Chap. I. by **Col. Henry Wray**:—*Stone*. Describes various kinds, composition, weight, weathering, &c. The remainder of the volume is by **Major Henry Smith**, and describes Bricks, Limes, Cements, Plasters, Asphaltes. W. T.

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Geological information is scattered throughout.

Six Essays:—"Suggestions, founded upon Evidence already published, for dividing England and Wales into Watershed districts, for the supply of pure water to the Towns and Villages in each district;" each illustrated by a map of districts (not geological):—**Frederick Toplis**, pp. 3-15 (of reprint); **Joseph Lucas**, 16-27; **A. T. Atchison**, 27-34; **W. H. Penning**, 35-43; **Prof. D. T. Ansted**, 43-64; **S. B. Goslin**, 65-71.

Papers:—**F. B. Conder**, The Utilization of the Water Supply of England, pp. 74-78; **W. H. Wheeler**, 78-84; **Rev. J. C. Clutterbuck**, 84, 85; **C. E. De Rance**, Pervious Rocks of England and Wales, 85-86; **Prof. E. Hull**, On the Underground Water-supply of Villages, Hamlets, and Country Parishes of the Central and Eastern Counties of England, 86-91; **Joseph Lucas**, Watershed Lines, 91-93; **Prof. J. Prestwich**, 93-94; **Robert Sutcliffe**, 113-116.

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McCreath, A. S. Coals, &c., Pennsylvania: *post*, under PETROLOGY.

PETROLOGY.

Sub-Editor F. W. RUDLER, F.G.S.

Adan de Yarza, R. Las Rocas Eruptivas de Viscaya. [Eruptive Rocks of Biscay.] *Bol. Com. map. geol. Españ.* t. vi. pp. 269-286.

Describes trachytes, serpentines, and wackès.

Allport, S. On the Diorites of the Warwickshire Coal-field. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 637-642.

Describes the microscopical structure of the diorites, and mentions an important rock containing augite and olivine as well as hornblende.

A. J. J.-B.

Angelbis, Dr. [Volcanic Rocks of the Westerwald.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, *Corr.-Blatt.* pp. 102, 103.

Anon. The Sandstones of the Carboniferous and Triassic Rocks. *Forester*, vol. ii. pp. 68-75.

Notifies the nature of sand. Describes the chief kinds of sandstone, and notes their various colours and the causes thereof.

Bechi, Prof. E. Sulla composizione delle roccie della miniera di Montecatini. [Composition of Rocks of Monte Catini, Tuscany.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 95, 96, *Mem.* vol. iii. pp. 63-68.

Finds boracic acid in serpentine and euphotide, vanadic acid in the latter, baryta in marble, and titanium in selagite (a variety of trachyte). Gives 14 analyses.

W. H. D.

—. Sulla Prehnite, e sulla Laumonite della miniera di Montecatini. [Prehnite and Laumonite of Monte Catini, Tuscany.] *Atti R. Ac. Linc.* ser. 3, *Trans.* pp. 114-117.

Gives analyses of the soluble and insoluble portions of a rock called Prehnitoid, of Prehnite, and of a zeolite near Laumonite.

—. Nuove ricerche del boro e del vanadio. [New Researches on Boron and Vanadium.] *Atti R. Ac. Linc.* ser. 3, *Mem.* vol. iii. pp. 403-406.

Finds boron and vanadium in igneous and aqueous rocks, in the ashes of plants, in mineral and thermal waters, even in rain-water.

Becke, Friedrich. Gesteine aus Griechenland. II. Krystallinische Schiefer. [Rocks from Greece.] *Min. petr. Mitth.* Bd. ii. pp. 17-77.

Describes a collection of crystalline schists from Thessaly, Phthiotis, Attica, and Eubœa. Hornblende-gneiss, hornblende-epidote schist, chlorite-epidote schist, epidote-gneiss, phyllite, and phyllite-gneiss are the chief sorts. Much of the epidote is thought to be original. From Eubœa arkose-gneiss is described; it is said to be intercalated among sandstones and greywacke; it contains clastic decomposed felspars with some crystalline elements, as quartz, mica, chlorite, &c. E. B. T.

———. Gesteine von Griechenland. [Rocks from Greece.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxviii. Abth. 1, pp. 417-430.

Two kinds of serpentine are described: one formed from olivine-rock as in Eubœa; the olivine may be entirely serpentinized or parts left still unchanged; the other contains no olivine, but aggregates of radiating fibres, pseudomorphs of a lamellar pyroxene, picotite, and magnetite. Of crystalline schists, varieties of hornblende-epidote schist, chlorite-schist with magnetite crystals, gneiss, phyllite-gneiss with glaucophane are described. An arkose-gneiss alternating with greywacke, and other clastic rocks are noticed. E. B. T.

Bonney, Prof. T. G. On Professor Dana's Classification of Rocks. *Geol. Mag.* dec. ii. vol. vi. 199-203.

Defends the use of the terms *diabase*, *gabbro*, *plagioclase*, &c., and shows the importance of keeping the igneous and sedimentary rocks distinct in classification. W. K.

———. Notes on some Ligurian and Tuscan Serpentes. *Geol. Mag.* dec. ii. vol. vi. pp. 362-371. Translated in *Boll. R. Com. geol. Ital.* vol. x. pp. 461-474.

Describes the serpentines and gabbros, both macro- and microscopically. Gives an analysis of the Levanto serpentine by **C. T. Heycock**. Shows that these serpentines are altered olivine rocks, probably of igneous origin. The common association of serpentine and gabbro is notable. W. K.

Bonney, Prof. T. G., and F. T. S. Houghton. On some Mica-traps from the Kendal and Sedbergh Districts. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 165-180.

Prof. Bonney gives a general account of the rock, its localities and its component minerals, and petrological details of specimens from 16 exposures. Mr. Houghton gives 7 chemical analyses. W. W.

Bořický, Dr. Em. Ueber den dioritischen Quarzsyenit von Dolanky. [Quartz-syenite of Dolanky.] *Min. petr. Mitth.* Bd. ii. pp. 78-85. Occurs as a dyke 5 to 12 feet thick among felsite-dykes. The horn-

blende is decomposed, a few pseudomorphs of it are now chlorite, epidote, magnetite with grains of quartz, and calcite. The feldspars are, from analysis, calculated at—Orthoclase 20 p. c., Andesine 17 p. c. The rock is therefore termed a dioritic quartz-syenite; there is free quartz 20 p. c. Total silica 58.46 p. c. The rock described by **Helmhacker** from Podbaba near Prague as diorite is considered a diabase.

E. B. T.

Carnot, Prof. A. Tableaux des Essais de Combustibles Minéraux faits au bureau de l'Ecole des Mines. [Tables of Assays of Combustible Minerals.] *Ann. Mines*, sér. 7, t. xvi. pp. 423-487.

Gives the percentage of volatile matter, fixed carbon, and ash of 841 samples of anthracite, coal, and lignite from France (692), Corsica (6), Algeria (32), New Caledonia (3), Cochinchina (2), Great Britain (11), Austro-Hungary (13), Bavaria (3), Belgium (33), Faroe Islands (5), Spain (8), Italy (11), Prussia (1), Roumania (2), Russia (16), and Servia (3).

W. H. D.

Cohen, E. Kersantit von Laveline. *N. Jahrb.* pp. 858, 859.

Announces the discovery of Kersantite in three veins cutting through the augitic biotite-granite of Laveline near Markkirch, in upper Alsace, and describes the constituents of the rock.

F. W. R.

—. Ueber einen Eklogit, welcher als Einschluss in den Diamantgruben von Jagersfontein, Orange Freistaat, Süd-Afrika, vorkommt. [An Eklogite, which occurs as an enclosure in the Diamond-mines of Jagersfontein, Orange Free State, S. Africa.] *N. Jahrb.* pp. 864-869.

—. [Petrological Notes.] *N. Jahrb.* pp. 870-872.

Notes on various rocks collected during the meeting of the Geological Society of the Upper Rhine, April 1879.

Cossa, A. Osservazioni chimico-microscopiche sulla cenere dell'Etna caduta a Reggio di Calabria il 28 maggio u. sc., e sulla lava raccolta a Giarre il 2 giugno. [Ash and Lava of Etna.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 248-250; *Boll. R. Com. geol. Ital.* vol. x. pp. 329-332; *Compt. Rend.* t. 88, pp. 1358, 1359.

Dana, Prof. J. D. On some Points in Lithology. No. 2. On the composition of the Capillary Volcanic Glass of Kilauea, Hawaii, called Pélé's Hair. *Amer. Journ.* ser. 3, vol. xviii. pp. 134, 135.

Gives analyses by **F. J. Allen**, **Prof. O. D. Allen**, and of Connecticut trap by **G. W. Hawes**.

Dana, Prof. J. D. Some Points in Lithology. *Canad. Nat.* n. s. vol. ix. no. 1, pp. 40-48, 80-91.

Criticizes value of distinctive characters generally accepted in defining kinds of rocks. Proposes the prefix "meta" for metamorphic rocks; examples dioryte, for the eruptive; metadioryte for the metamorphic part. Considers the term plagioclase to be synonymous with felspar. Classifies the crystalline rocks. Gives several analyses. E. W.

Dathe, E. Ueber normale Granulite. *N. Jahrb.* p. 388.

Microcline occurs in many granulites, and plagioclase in all. The graphic-granite texture is not uncommon.

Dechen, H. von. [Bedding of Basalt.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, *Sitz.* pp. 385-393.

Dieulafait, L. Diffusion du cuivre dans les roches primordiales et les dépôts sédimentaires qui en procèdent; conséquences. [Copper in Primordial and Later Rocks.] *Compt. Rend.* t. lxxxix. pp. 453-455.

—. Sur la présence de la lithium dans les roches et dans les eaux des mers; conséquences relatives aux terrains salifères et à certaines classes d'eaux minérales. [Lithium in Rocks and Seawater; Effects on Salt-beds and Mineral Waters.] *Compt. Rend.* t. lxxxviii. p. 656.

Doelter, Dr. C. Ueber das Vorkommen von Propylit und Andesit in Siebenbürgen. [Propylite and Andesite in Transylvania.] *Min. petr. Mitth.* Bd. ii. pp. 1-16.

Gives a result of the microscopic examination of many Transylvanian Andesites. Zirkel's microscopic distinctions between these two classes of rock hold good in Transylvania, specially as regards the quartz-members. There is a passage, however, from the Andesites to the quartz-andesites, and there is not such a marked difference in habit between Propylite and Andesite groups as in N. America. E. B. T.

—. Ueber das Vorkommen des Propylits in Siebenbürgen. [Occurrence of Propylite in Transylvania.] *Verh. k.-k. geol. Reichs.* pp. 27-29.

Petrological description of Transylvanian propylites.

Foullon, Baron H. von. Ueber Eruptivgesteine von Recoaro. [Eruptive Rocks, &c.] *Min. petr. Mitth.* Bd. ii. pp. 449-488.

Among the Recoaro eruptive rocks submitted to microscopic examination are quartz-porphry with some granulated amorphous base; as ac-

cessories, mica, hornblende, and an andalusite-like mineral. Porphyrites of andesitic type are abundant; felspar bars form about 50 p. cent. of the ground, while between is amorphous matter and decomposition products, &c. Diabase-porphyrites and few melaphyres, some of doleritic type; others of basaltic type with abundance of olivine, of uncertain age; the others mentioned are connected with Trias beds, or are intrusive in the adjacent mica-schist. E. B. T.

Fouqué, Prof. F. Les applications modernes du microscope à Géologie. [Applications of the Microscope to Geology.] *Revue deux Mondes*, t. xxxiv. pp. 406-431.

Treats of the progress made in knowledge of the mineral constituents of rocks by the method of using thin transparent slices, by which means the minerals are determinable; solves their order of formation. E. B. T.

——. Recherches minéralogiques et géologiques sur les laves des Dykes de Théra. *Mém. Div. Sav. Ac. Paris*, t. xxvi. pp. 59; 3 pls.

Fouqué, Prof. F., and Michel Lévy. Minéralogie micrographique. Roches éruptives françaises. [Microscopic Petrology of French Eruptive Rocks.] 2 vols. *Mém. Carte géol. France*, pp. iv, 590, 55 pls., 125 figs. 4to. Paris. Price 48 fr.

The first part treats of general matters relating to preparation of thin slices, microscopes, optical properties of minerals, directions of extinction, &c.; the determination of the crystal system by examination between crossed Nicols; aggregates, sphærolites, polychroism; analysis of rocks by flame-reactions, &c.; deformation of minerals. The second part of classification of rocks, and detailed account of rock-forming minerals with their optical properties. The coloured plates illustrate the structure of many typical rocks. E. B. T.

Fraser, Prof. P. Classification of Coals. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 430-451.
Many analyses.

Fremy, F. E. Chemische Untersuchungen über die Bildung der Steinkohle. [Chemical Researches into the Structure of Coal.] *Berg-hütt. Zeit.* p. 341; *Österr. Zeitschr. Berg-Hütt.* p. 607; *Compt. Rend.* t. lxxxviii. p. 1048.

Geinitz, Dr. Eugen. Proterobas von Ebersbach und Kottmarsdorf in der Oberlausitz. [U. Silesian Proterobase.] *Sitz. Isis Dresden* for 1878, pp. 188-192.
Petrological account.

Gonnard, F. Note sur quelques faits minéralogiques observés dans les Granits des Bords de la Saône. [Granites of the Saône.] *Mém. Ac. Lyon*, t. xxiv. pp. 195–200.

Gröger, F. Der Idrianer "Silberschiefer." *Verh. k.-k. geol. Reichs.* pp. 105, 106.
Describes a rock with metallic mercury overlying the cinnabar-bed.

Guignet, —. Sur la constitution de la houille. [Composition of Coal.] *Compt. Rend. t. lxxxviii.* p. 590.

Gümbel, Dr. C. W. Lithologisch-mineralogische Mittheilungen. [Litho-mineralogical Communications.] *Min. petr. Mitth.* Bd. ii. pp. 186–191.

I. From Kerguelen Island, collected during the 'Challenger' expedition; describes slaggy basalt in the cavities of which analcime occurs; from Fernando de Noronha in S. Ocean a sanidine-nepheline-phonolite. II. Analyzes the white talcose mineral which forms the substance of the Carboniferous coal-plants in the Alps, and finds it identical with that of which Graptolites are composed, and allied to pyrophyllite; the shale itself in which the plants occur does not differ much in composition, and microscopic sections show that the mineral exists in the shale itself.

E. B. T.

——. Ueber das Eruptionsmaterial des Schlammvulkans von Paternò am Aetna und der Schlammvulkane im Allgemeinen. [Volcanic Muds of Etna, &c.] *Sitz. k.-bay. Ak. Wiss.* Bd. ix. pp. 217–273. Translated abstract in *Boll. R. Com. geol. Ital.* vol. x. pp. 506–533, 561.

——. Vulkanische Asche von Aetna von 1879. *N. Jahrb.* pp. 859–861. Translated abstract in *Boll. R. Com. geol. Ital.* vol. x. pp. 605–608.

Describes the chemical and mineralogical constitution of the ashes which fell at Reggio in Calabria on 29th May 1879. Concludes that they represent broken-up solid lava, and not lava dispersed in a liquid state.

F. W. R.

Hahn, Dr. Otto. Die Urzelle; nebst dem Beweis dass Granit, Gneiss, Serpentin, Talk, gewisse Sandsteine, auch Basalt, endlich Meteorstein und Meteoriten aus Pflanzen bestehen; die Entwicklungslehre durch Thatsachen neu begründet. [Primitive Cell, &c.] Pp. 71, pls. 30. 8vo. *Tübingen.*

Asserts that granite, basalt, meteorites, &c. are formed from and contain fossil plants.

Hamberg, N. P. Undersökning af badgytjan vid Marstrand.
[Examination of Bathing Mud of Marstrand.] Pp. 32. 4to.
Stockholm.

Hansel, Vincenz. Mikroskopische Untersuchung der Vesuvlava vom Jahre 1878. *Min. petr. Mitth.* Bd. ii. pp. 419-430.

Microscopic examination of the Vesuvian lava of 1878 shows that it is one of the richest in olivine of the modern lavas, while mica is quite absent. Glassy base is present, some of it coloured, some colourless. Some of the augite crystals show a colourless layer alternating with coloured layers. E. B. T.

Hare, R. B. Die Serpentin-Masse von Reichenstein und die darin vorkommenden Mineralien. [Serpentine of Reichenstein and its Minerals.] *Ber. deutsch. chem. Ges.* Jg. xii. no. 14, p. 44.

Helmhacker, B. Bemerkungen zu dem Aufsatze des Herrn E. Bořický: der Glimmerpikrophyr, eine neue Gesteinsart und die Libšicer Felswand. *Min. petr. Mitth.* Bd. ii. pp. 85-93.

In reply, explains some misconceptions of Prof. Bořický: see the GEOLOGICAL RECORD for 1878, p. 418.

Herter, Paul. Ueber die Silicatgesteine im Eocäengebirge von Massa Marittima. [Silicated Rocks in the Eocenes of Massa Marittima.] *N. Jahrb.* pp. 839, 840, with woodcut.

A tunnel between the Noni and Castrucci valleys has revealed the presence of epidotic and pyroxenic rocks conformably interbedded with Eocene strata. F. W. R.

Hilger, [A.]. Mittheilungen aus dem Laboratorium für angewandte Chemie der Universität Erlangen. [Communications from the Laboratory of Applied Chemistry in the University of Erlangen.] *N. Jahrb.* Heft ii. pp. 127-132.

Analyses of porphyry from near Wielburg, Nassau; diorite from Diez, Rupbachthal, Nassau; diallage and bronzite from the Dun Mt., near Nelson, N. Z.; pinitoid from the Fichtelgebirge; zinc-blende from Rothenburg; zinc-spar from Ems; a mixture of cinnabar, meta-cinnabarite, and stibnite from Huitzuco, Mexico; and pyromorphite from Dernbach, near Montabaur, Nassau. F. W. R.

——. Mineral- und Gesteinsanalysen. [Analyses of Rocks and Minerals.] *Sitz. phys.-med. Soc. Erlangen*, Heft ii. 1879. B

Hill, Dr. Alfred. The Chemistry of the Mine. Part Second and Part Third. *Trans. N. Staff. Inst. Eng.* vol. i. pt. i. pp. 24-39, 57-74.

Refers to the composition of coal, and to the gases found in collieries.

Hofmann, Dr. K. Die Basaltgesteine des südlichen Bakony. [Basaltic Rocks of S. Bakony.] *Mitt. Jahrb. kön. ung. geol. Anst.* Bd. iii. Heft 4, pp. 241, coloured pl. xiii.-xvi., geol. map, and 11 cuts. Magyar title entered in GEOLOGICAL RECORD for 1878, p. 215.

The microscopic structure of the basalt both from the earlier and later parts of most of the eruptions is described; that from the whole district is very similar, but varies in the amount of glassy base and individualization of the nepheline which is present in most cases. A micro-fluidal arrangement usually exists. Ilmenite occurs chiefly in the part solidified under greater pressure, but magnetite in that cooled nearer the surface. Picotite is noted in the olivine, which latter is considered pre-existent in the lava, as is also the hornblende when present. The rock is classified as transitional between the felspar- and nepheline-basalts, since plagioclase is always abundant, while nepheline often exists. The date of eruption was towards the end of the Congeria stage, after that of the trachyte-district, where activity began in the Mediterranean stage. The structure of the cones and the relation of basalt to tuffs, &c. is described, with full geognostical details. E. B. T.

Houghton, F. T. S. Note on an Olivine Gabbro (Forellenstein) from Cornwall. *Geol. Mag.* dec. ii. vol. vi. pp. 504, 505.

Gives analyses of the rock and of the felspar-crystals. The felspar is not true anorthite, but possibly decomposed Labradorite.

Hull, Prof. Edward. Section of Dolerite, containing the new mineral Hullite. *Quart. Journ. Mic. Sci.* n. s. vol. xix. p. 438.

The mineral occurs in grains filling cavities and small fissures in the rock.

——. Section of Quartziferous Diorite of Quenast. *Quart. Journ. Mic. Sci.* n. s. vol. xix. p. 439.

——. Section of Syenite, with imbedded slender prisms, considered to be Disthene. *Ibid.* p. 440.

——. Section of Quartzite from Nephin. *Ibid.* p. 447.

Hussak, E. Die Trachyt von Gleichenberg. *Mitth. nat. Ver. Steiermark* for 1878.

Inostranzeff, Prof. A. Studien über metamorphosirte Gesteine im Gouvernement Olonez. Pp. 1-275; 3 tab., map and 10 cuts. 8vo. *Leipsic.* 10 Th.

The rocks of the Olonez' district, which extends over 2° of latitude by 4° of longitude, are described, microscopic and often chemical analyses being given, and conclusions are drawn as to the mode of origin of several varieties, with the nature of the metamorphosis met with. Dolomites, quartzites, chlorite- and talc-schists, greenstones, including normal diorite, epidote-diorite, and numerous other varieties, syenite, granite, gneiss, clay-slate, various clastic rocks, conglomerates, &c., are elucidated in detail. The contact of diorite with the various rocks observed, and enclosures in diorite are similarly treated. The changes which the diorites have undergone, and the origin of their secondary minerals is discussed: by hydrochemical processes epidote is formed at expense of oligoclase, while biotite, chlorite, actinolite, and talc result from hornblende. Some of these products of decomposition from diorites act on the surrounding rocks, producing metamorphism in them: thus carbonate of magnesia from diorite acts on limestone, converting it to dolomite; similarly talc- and chlorite-schist result from impregnation of clay-slate, &c. with these secondary minerals derived from the diorites, as is proved from their relation to the greenstones. The date of this metamorphosis is after the eruptions of the diorites, viz. at the end of the Devonian and during L. Carboniferous. E. B. T.

Issel, A. Conclusioni di uno studio sui terreni serpentinosi della Liguria orientale. [Ligurian Serpentine.] *Boll. R. Com. geol. Ital.* vol. x. pp. 572-583.

The serpentines are accounted eruptive rocks poured over soft U. Eocene sediments in a deep sea in a pasty condition; if made from a perioditic magma by hydration, the hydration is supposed to have preceded their emission. The cuphotide, &c., which are in contact frequently, are held not to be igneous rocks, but formed of the soft unconsolidated sediments by the metamorphic action of hot waters which accompanied the eruption of the serpentine, while the sea-water heated by the latter may have also helped. E. B. T.

Jellett, Rev. J. H. Measurements of Angles of Basaltic Columns in the Giant's Causeway. *Min. Mag.* vol. iii. no. 13, pp. 101-104.

John, C. v. Ueber einige Eruptivgesteine aus Bosnien. [Some Eruptive Rocks from Bosnia.] *Verh. k.-k. geol. Reichs.* pp. 239-241.

Diabase of Doboj Castle, olivine-gabbro of Maglaj, and serpentine of Zepče.

Koch, Dr. Antal. A Ditroi Syenittömzs Közeltani és Hegyszerkezeti Viszonyairól. [Petrology of the Ditro Syenite-Stockwerk, and Notes on Mountain Structure.] *Ertek. Termész. Kör. köt. ix. sz. ii.* pp. 50; double plate (map, sections, rock-slices).

Literature; mineralogy, with analyses of elæolite, cancrinite, and sodalite (21 species referred to); petrological notes on 62 specimens; summary. W. H. D.

Kürthy, Dr. Landor. [Petrology of the Crystalline and Water Rocks of the Hegyes-Drócsa-Pietrócsa Mountains and similar Transylvanian Rocks.] *Földt. Közl.* köt. viii. sz. 6.

Lenz, Dr. Oscar. Ueber Süßwasserkalke bei Tlumaczin Ostgalizien. *Verh. k.-k. geol. Reichs.* pp. 144, 145.
Gives analyses, by **Prof. Stingl**, of soil and subsoil.

Lorié, J. Bijdrage tot de kennis den Javaansche Eruptiefgesteenten. [Eruptive Rocks of Java.] 8vo. *Rotterdam*.

Lossen, K. A. [Occurrence of Albite-porphryoid in the Hartz.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 441-444.
The albite, which occurs in a dark hornstone-like matrix, was recognized by a chemical analysis; it is clear, and often not twinned.

Luca, S. de. Ricerche chimiche sopra una materia stratiforme rinvenuta negli scavi di Pompeii. [Bedded Ash, Pompeii.] *Rend. R. Ac. Sci. Napoli*, anno xviii. fasc. 3.

McCreath, A. S. Second Report of Progress in the Laboratory of the Survey at Harrisburg. *Second Geological Survey of Pennsylvania.* Pp. 438. 8vo. *Harrisburg*. (Report MM.)

Gives many analyses of coals, iron-ores, clays, zinc, and lead-ores, limestones, marls, barytes, &c., with descriptions and sections of the beds yielding them. **Prof. P. Frazer, Junr.**, deals with the classification of coals, and **Prof. J. P. Lesley** gives notes on dolomitic limestones.
W. H. D.

Macpherson, J. Descripción de algunas Rocas que se encuentran en la Serranía de Ronda. [Description of some Rocks occurring in the Serranía de Ronda.] *An. Soc. españ. Hist. Nat.* t. viii. pp. 229-264, pl. 5.

The rocks described are Tourmaliniferous Granite, Gneiss, Diabase, Norite, Peridotite, Steatite, and Chiasolite-slate.

Mann, Paul. Ueber Mikroklin in Perthit. [Microcline in Perthite.] *N. Jahrb.* p. 389.

The Perthite of Perth in Canada is generally regarded as a lamellar aggregate of reddish orthoclase and white albite. Thin sections cut parallel to *o* P show that the orthoclase bands contain much microcline, this mineral being distinguished by the cross-barred structure, the lamellæ of which extinguish at about 15°. F. W. R.

Maskelyne, Prof. N. S. Enstatite Rock from South Africa. *Phil. Mag.* vol. vii. pp. 135, 136.

Microscopic examination showed that a rock from two localities in the Transvaal is composed of crystalline enstatite without other minerals. Analysis given. F. D.

Meyer, Otto. Einiges über die mineralogische Natur des Dolomits. [Mineralogical Nature of Dolomite.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 445-452.

To test whether Dolomite was a mixture of individual grains of calcium- and magnesium-carbonate, thin slices of calcite, dolomitic limestone, magnesite, &c. were prepared and submitted to acid under identical conditions; after the calcite was dissolved the dolomitic slices were examined with the microscope, and it was found that no grains had been dissolved. Individual grains of calcite therefore do not exist, and the criterion founded on twinning for a microscopic separation of individual grains is not to be depended on. Other experiments are noted.

E. B. T.

Neubauer, P. [Königshain Granite.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 409-411.

The Königshain hill, N.W. of Görlitz, is rich in druses in which occur many minerals—Microcline, Molybdenite, Anatase, Wolfram, &c. The microcline of the druses and coarse-grained secretions is intergrown with albite; for this the term Microcline-perthite is proposed. The green examples are made of greenish microcline and white albite stripes. But much is of various shades of brown or even black; in this case the microcline is coloured by manganese.

E. B. T.

Niedzwiedzki, J. Zur Kenntniss der Eruptivgesteine des westlichen Balkans. [Eruptive Rocks of W. Balkans.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. i. pp. 138-182.

Among the rocks noted are various kinds of Granite, Syenite, Syenite-porphry, Diorite, Diabase, Liparite, Augite, and Amphibole-Andesite.

O'Reilly, J. P. Explanatory Notes and Discussion of the Nature of the Prismatic Forms of a Group of Columnar Basalts, Giant's Causeway. *Trans. R. Irish Ac.* vol. xxvi., *Science*, pp. 641-728, pls. xv.-xviii.

Palmieri, Prof. L. Studi sul polyiscolo piovuto el 25 febbraio 1879 in Portici. [Dust-rain, Portici.] *Rend. R. Ac. Sci. Napoli*, anno xviii. fasc. 4.

Penck, Albrecht. Ueber Palagonit- und Basalttuffe. [Palagonite-tuff, &c.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 504-575.

Discusses the palagonite of Iceland, and concludes that sideromelane, tachylyte, and hyalomelane are all basaltic glass, and none of them minerals. Palagonite tuffs from Sicily, Siebengebirge, Eifel, Hohenhöwen, Styria, Bohemia, Auvergne, Alban Hills, and Canaries were microscopically examined, and the conclusion is that none of them contain a substance having the properties ascribed to palagonite by

Waltershausen, and that such a substance has no existence. The name palagonite-tuff should therefore be abandoned, and the term basalt glass-tuff be substituted, as this indicates the composition.

E. B. T.

Périer, L. [Composition of Coralline (Nullipore) Marl from the Bay of Morlaix (Brittany).] *Les fonds de la Mer*, t. iii. (1879), p. 223.

Analysis shows magnesium carbonate 11·23 per cent.

Potier, —. Sur la composition de quelques roches éruptives des environs de Fréjus. [Eruptive Rocks, Frejus.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 430, 431.
6 analyses.

Pozzi, G. E. Sopra alcune varietà di protogino del Monte Bianco. [Protogine of Mt. Blanc.] *Atti R. Ac. Sc. Torino*, vol. xiv. pp. 14.

Rath, Prof. G. vom. [Transylvanian Andesite.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, Sitz. pp. 322, 323.

—. [Transylvanian Trachytes and Agglomerates.] *Ver. nat. Ver. preuss. Rheinl.* Bd. 36, Sitz. pp. 402–414.

Renard, A. Peridotit von der St. Paul's-Insel im Atlantischen Ocean. [Peridotite of St. Paul's Island.] *N. Jahrb.* pp. 390–394, with woodcut.

Description of specimens of the St. Paul's rock collected by the 'Challenger.' It is a typical olivine rock, consisting essentially of very small grains of olivine, with chromite, amphibole, and enstatite. Its eruptive origin is indicated by the fluidal structure which it strikingly exhibits. The rock is in a very fresh condition, yet shows slight serpentinization: its fissures contain phosphate of lime, which also forms a cement uniting fragments of the rock into a peridotite-breccia; its origin is to be sought in the excrements and bones of birds visiting the island.

F. W. R.

Renard, A., and T. [should be J.] Murray. On the Volcanic Products of the Deep Sea of the Central Pacific, with reference to the 'Challenger' Expedition. *Rep. Brit. Assoc.* for 1879, pp. 340, 341.

Describes the sea-bed from the Sandwich Islands to S. lat. 30°. Volcanic matter is abundant, chiefly as lapilli and ashes in the "red clay;" these are basaltic, some glassy, and are often coated with manganese. Quartz grains are absent, whilst in shore deposits they are abundant. The volcanic matter decomposes, forming the clay and free zeolites.

W. T.

Roller, Dr. Friedrich. Mikropetrographische Beiträge aus den Rhätischen Alpen. [Microscopic Study of Rocks from the Rhætic

Alps.] Pp. 45. 8vo. *Wiesbaden*. Translation of this and of the paper noticed in the *GEOLOGICAL RECORD* for 1878, p. 105, in *Boll. R. Com. geol. Ital.* vol. x. pp. 474-506.

The rocks were derived from Casanna zone, the Verrucano zone, the Triassic limestones and dolomites, and the green and grey variegated slates. F. W. R.

Roth, Prof. J. Beiträge zur Petrographie der plutonischen Gesteine gestützt auf die von 1873 bis 1879 veröffentlichten Analysen. [Petrography of Plutonic Rocks, &c.] *Abh. k. Ak. Wiss. Berlin*, lxxx. pp. 51.

Collects all analyses of plutonic rocks published between 1873 and 1879, classifying them, and printing in columns, with remarks. The first half of the work consists also of notes elucidating the analyses. The Crystalline Schists are also included and discussed. E. B. T.

Roth, Dr. S. Eine eigenthümliche Varietät des Dobschauer Grünsteins. [A peculiar Variety of Dobschau Greenstone.] *Verh. k.-k. geol. Reichs.* pp. 223-226.

Rothpletz, —. Ueber mechanische Gesteinsumwandlungen bei Hainichen in Sachsen. [Changes in Rocks near Hainichen.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 355-398, taf. 9, 10.

Describes the quartzite pebbles in the Culm conglomerate near Hainichen, which have been impressed by adjoining pebbles, or crushed, the fragments being sometimes twisted out of position. The microscope shows that the quartz grains are crossed by two or more sets of most minute cracks; along these cracks are minute fluid-cavities, sometimes with moving bubbles. Mechanical pressure, which would also quicken chemical solution, is looked to as the explanation of the phenomena. The crushed masses of actinolite-schist below the Culm basin at Hainichen are also described. Many analyses are given of the epidotic and actinolite schist varieties. E. B. T.

Rutley, Frank. The Study of Rocks. Pp. xii, 319. 8vo. *London*.

A few chapters are devoted to general matters concerning the origin of rocks, the movements which the sedimentary beds have undergone, &c. The method of cutting thin slices is detailed. Chap. X. The rock-forming minerals are taken, their characters being given. Chap. XI. Classification of Rocks, the eruptive grouped under (1) Vitreous, (2) Crystalline, which are described in Chap. XI.-XIII. Chap. XIV. is devoted to the sedimentary series. E. B. T.

— On Community of Structure in Rocks of Dissimilar Origin. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 327-340.

Holds that many rocks to which different names have been given are identical, except in the relative dimensions of their constituents. Discusses the origin of the rounded forms of crystals, and of vesicular, amygdaloidal, and spheroidal structure. Roughly classifies all rocks

as eruptive and clastic, and subdivides them according to certain structural peculiarities. Points out the difficulties in determining the origin of some clastic rocks, and dwells on the resemblances between certain devitrified rhyolitic rocks, felstones, and felspathic grits. F. W. R.

Rutley, F. On Perlitic and Spherulitic Structures in the Lavas of the Glyder Fawr, North Wales. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 508, 509, woodcut.

Some of these lavas, of Bala age, exhibit distinct perlitic structure, while spherulitic structure is seen in others. It is thus shown that some of the Welsh felstones represent rocks that were originally vitreous. F. W. R.

Sandberger, F. Barytglimmer in alpinen Glimmerschiefern; Chromglimmer und Zirkon in Spessartschiefern; Kobaltminerale im körnigen Kalk von Auerbach; Zersetzungsproducte des Triphyllins vom Rabenstein. [Baryta-mica in Alpine mica-slates; Chrome-mica and Zircon in the Spessart slates; Cobalt-minerals in the Granular Limestone of Auerbach; and decomposition-products of the Triphyllin of Rabenstein, in Bavaria.] *N. Jahrb.* pp. 367-370.

Santos, J. R. Analysis of Volcanic Ash from a recent Eruption of Cotopaxi. *Chem. News*, vol. xl. p. 186.

Saur, A. Rutil als mikroskopischer Gesteinsgemengtheil. [Rutil as a microscopic constituent of Rocks.] *N. Jahrb.* pp. 569-576, with woodcuts.

Shows that most of the small crystals in gneiss, mica-schist, amphibolite, and eclogite, which have hitherto been described as zircon, are really rutile. F. W. R.

Sheibner, Dr. C. P. On Foyaite, an Elæolitic Syenite occurring in Portugal. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 42-47, pls. i., ii. (map, section, and microscopic sections).

This rock forms the hills of Foya and Picota in S. Portugal. It consists of orthoclase, elæolite, and hornblende, with a number of accessory minerals, including nosean, sodalite, titanite, biotite, muscovite, oligoclase, magnetite, pyrite, and apatite. Gives analyses of the foyaite and of the elæolite. Concludes that there is no need for a special group of foyaite. F. W. R.

Sigmund, A. Petrographische Studie am Granit von Predazzo. [Petrographical Study of Predazzo Granite.] *Jahrb. k.-k. geol. Reichs.* Bd. xxix. Heft 2, pp. 305-316. [Abstract noticed in *GEOLOGICAL RECORD* for 1878, p. 222.]

Most of the rock has a granitic structure, but some granite-porphyrism exists. Two constituents are noticed for the first time, potash-mica and garnet. A microscopic examination reveals two feldspars, the plagioclase often decomposed to a soft greenish substance. The

upper part of the granite was found to contain glass-inclusions, which have not been previously noticed; these were, however, quite absent from lower parts of the mass. Fluid inclusions with movable bubbles are abundant. Hornblende, tourmaline, biotite, &c. may be present.

E. B. T.

Sjögren, A. Mikroskopiska studier. I. Undersökning af Gneisgranit från St. Gotthardtunnelns nordligaste del. [Microscopical Examination of Gneiss-granite from the N.E. Part of St. Gotthard Tunnel.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 457-464. See also *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 619-621.

14 rock-specimens examined and described. Many characters found common to similar rocks of Sweden.

Speciale, Sebastiano. Ricerche di chimica mineralogia sulle lave dei Vulcani degli Ernici nella valle del Sacco. [Lavas of the Ernici Volcanoes.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 181-183; *Gaz. chim. Ital.* vol. ix.

Gives 10 analyses (5 each) of lavas of the volcanoes of Guiliano and Pofi.

Stappf, Dr. F. M. [Herr Meyer's Microscopic Examination of St. Gotthard Tunnel Rocks.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 405-409. [See above.]

Notifies the occurrence of titanium as rutile. The anhydrite and gypsum which occur are of secondary origin, for they take the impression of the quartz-crystals, and occur in veins or cavities. Zircon was found in the hornblende-rock No. 99.

E. B. T.

Stern, Hugo. [Petrology of Porphyry and Diorite from Szörény County.] *Földt. Közl.*

Szabo, Dr. J. The Tertiary Eruptive Rocks. *Amer. Nat.* vol. xiii. pp. 399-402.

Gives a sketch of his classification of the trachytic group of rocks, mainly based upon an examination of the trachytic rocks of Hungary. The chronological order of the Hungarian trachytes is also given, and the reasoning founded on these is extended to the trachytic formations in the United States and in other countries.

F. R.

Tacchini, —. Sur des particules ferrugineuses observées dans la poussière amenée par un coup de vent de siroco en divers points de l'Italie. [Dust-rain brought to Italy in a Sirocco.] *Compt. Rend.* t. lxxxviii. p. 613.

Thomson, William. Notes on a Sample of Fuller's Earth, found in a Fullonica recently excavated at Pompeii. *Rep. Brit. Assoc.* for 1879, pp. 321, 322; and *Chem. News*, vol. xl. p. 138.

Gives analysis.

Wadsworth, Dr. M. E. On the Classification of Rocks. *Bull. Mus. Harvard Coll.* vol. v. pp. 275-287.

An abstract giving the results of the microscopic examination of rocks collected over a continuous area of 300,000 sq. miles. Objects to the present, and lays down some of the principles of a new, classification of rocks. Remarks on the method of study and the different origin of minerals now forming the rocks. Introduces the name *porodite* for the old and altered fragmental forms of eruptive rocks, in contradistinction to that of tufa used to indicate the fragmental state of modern eruptive rocks. Criticises the petrographical work of King and Zirkel.

M. E. W.

Werveke, Leopold van. Beitrag zur Kenntniss der Limburgite. [Contribution to a knowledge of Limburgite.] *N. Jahrb.* pp. 481-489, woodcuts.

Description of Limburgite from two new localities—(1) the I. of Palma, and (2) Foya in S. of Portugal. The Palma rock is vesicular, dark-brown, and with hornblende and augite, with magnetite and olivine subordinately. An analysis is given. The Foya rock had been taken for a basalt. Sections show a grey ground-mass, with crystals of hornblende, augite, olivine, and hauyne.

F. W. R.

——. Beitrag zur Kenntniss der Gesteine der Insel Palma. [The Rocks of the I. of Palma.] *N. Jahrb.* pp. 815-831, with 5 woodcuts.

The rocks described are—*felspar-basalt*, with interesting crystals of olivine; *basanite* (composed of nepheline, plagioclase, augite, olivine, mica, and magnetite); and *tephrite*, much like the felspar-hauyne-phonolite from Campanario in Palma.

F. W. R.

Wichmann, Dr. Arthur. A Microscopical Study of some Huronian Clay-Slates. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 156-164.

These slates, from the Huronian region of Lake Superior, consist of ordinary clay-slate with subordinate beds of novaculite, or whetstone, and carbonaceous shale or slate. The origin of the crystalline constituents is discussed, and the conclusion is that they were formed after the deposition of the slate-mud, while this was still plastic. The great hardness of novaculite is connected with the presence of garnet.

F. W. R.

Zepharovich, V. von. Ueber Dolomit-Pisolith und die sogenannte "doppeltkörnig" Structur. [Dolomite-Pisolite and the so-called concentric Structure.] *Zeitsch. Kryst. Min.* Bd. iv. Heft ii. pp. 113-118.

The so-called concentric (doppeltkörnig) or miemitic structure does not occur as an accident of deposition in aggregates of simple minerals.

The pisolite structure so well shown in dolomites from Zepce and Rakováč resembles so closely that of Aragonite-pisolite from Karlsbad, that we are led to assume for it a like mode of formation. As magnesite and dolomite are decomposition products of Serpentine, and as pisolite, according to Beudant, occurs in the form of veins in Serpentine near Rakováč, it is probable that such veins in Serpentine were broken up, and that springs deposited ferruginous calcium-magnesium carbonate around the fragments in concentric layers. T. W. D.

Zirkel, [Prof.] F. Limurit aus der Vallée de Lesponne. [Limurite from the Valley of Lesponne.] *N. Jahrb.* pp. 379-382.

Describes a new rock found first as pebbles in the bed of the Adour, near Bagnères de Bigorre, and then in place near the Vallée de Lesponne by the Count de Limur, after whom it was named by Pastor Frossard. It is seen under the microscope to consist of axinite (about 60 p. c.), much monoclinic augite, dark green hornblende (augite and hornblende 30-35 p. c.), quartz, calcite, titanite, iron-pyrites, and magnetite. No feldspar or any micaceous mineral was detected. Gives a list of other localities in the Pyrenees where axinite has been found. F. W. R.

——. Les Roches cristallines de la Coupe du 40° Parallèle au Nord Ouest des États-Unis. [Crystalline Rocks of the 40th Parallel.] *Proc.-verb. Soc. belg. Micr.* pp. 94.

A résumé of the Report noticed in the GEOLOGICAL RECORD for 1876, p. 218.

SUPPLEMENT FOR 1874-1879.

Chapman, Prof. E. J. Analyses of Iron-ores and Ankerites from the Acadia Mines of Londonderry, Nova Scotia. *Canad. Journ.* n. s. vol. xv. p. 414. [1877.]

Daubrée, [Prof. G. A.]. Observations sur la structure intérieure d'une des masses de fer natif d'Ovifak. *Compt. Rend.* t. lxxxiv. pp. 66-70. [1877.]

On p. 69, Lawrencite is incidentally referred to.

Davies, Thos. Preliminary Note on old Rhyolites from Bouley Bay, Jersey, &c. *Min. Mag.* vol. iii. no. 14, pp. 118, 119. [1879.]

Gali, Dr. Michelangelo. I fanghi di Trescore e Zandobbio. [The Mud of the Trescore and Zandobbio Mineral Waters, Bergamo.] *Bergamo*, 1874.

Gives analyses.

Grensted, F. F. A piece of Chalk. *Midl. Nat.* vol. i. pp. 324, 325. [1878.]

Gives a mode of separating the shells of Foraminifera in a piece of Chalk from the structureless residuum.

Issel, Prof. A. Intorno ad una serpentina bollosa e cellulosa. *Atti R. Ac. Torino*, vol. x. p. 9. [1875.]

Lasaulx, Prof. A. von. [Eruptive Rocks in the Devonian Area of Saar and Mosel.] *Jahres-Ber. Schles. Ges. Kultur*, p. 46. [1878.]

Lesseps, F. de. Sur une pierre extraite du seuil de Chalouf. *Compt. Rend.* t. lxxxvi. p. 1536. [1878.]

Liebisch, Dr. T. Ueber die mineralogische Zusammensetzung des Gesteins von der Ostseite des Schaferberges bei Gottesberg. [Mineral Composition of the Rock on the East side of the Schaferberg, near Gottesberg.] *Jahres-Ber. Schles. Ges. Kultur*, pp. 31, 32. [1875.]

Macagno, —, and — Bertoni. Analisi della terra della solfatara di Pozzuoli. *R. Staz. enol. Sperim.* ann. ii. [1874.]

Maskelyne, Prof. N. S. [Petrology of Rodriguez.] *Phil. Trans.* vol. clxviii. pp. 296-301. [1878.]

Mostly dolerites with olivine and apatite; the felspar is labradorite; there are also varieties of basalts. The decomposition of these rocks has produced a red clay. W. T.

Palmieri, L. Del peso specifico delle lave vesuviane nel piu perfetto stato di fusione. [Specific Gravity of Vesuvian Lava in perfect Fusion.] *Rend. R. Ac. Sci. Napoli*, and *Riv. Scient.* 1876.

——. Sulla cenere lanciata dal Vesuvio a Portici e Resina la notte dal 3 al 4 Aprile 1876. [Ash thrown from Vesuvius April 3, 1876.] *Rend. R. Ac. Sci. Napoli*, 1876; *Ann. R. Scuola Sup. Agr. Portici*, 1878.

Palmieri, P. Il Litio scoperto dal Prof. S. de Luca nelle terre della Solfatara riveduto collo spettroscopio. [Discovery of Lithium in the Solfatara.] *Rend. R. Ac. Sci. Napoli*, 1875.

Rosenbusch, H. Ueber einige vulkanische Gesteine von Java. [Volcanic Rocks from Java.] *Ber. Verh. nat. Ges. Freiburg*, Bd. vi. Heft 1, pp. 77-112; 3 pls. [1876.]

Ruggiero, M. Sopra un masso di pomici trovato in Pompei, con una lottera del pr. Scacchi. [Pumice from Pompei.] 4to. *Naples*, 1877. Entered as by **Scacchi** in the GEOLOGICAL RECORD for 1878, p. 230.

Sestini, F. Analisi diverse. Travertino della Campagna Romana ; minerale manganesifero di Subiaco. [Travertine and Manganese Minerals.] *Bol. Com. Agr. Roma*, 1874.

Silvestri, O. Ricerche chimiche e micrografiche sulle polveri meteoriche cadute in Sicilia. [Meteoric Dust from Sicily.] *Atti Ac. Gioen. Sci. Nat.* ser. 3, vol. xii. 2 pls. [1876.]

Statuti, A. Esame di un calcare ad ippuriti che esiste nei dintorni di Terracina. [Hippurite Limestone at Terracina (Rome).] *Atti Ac. Pont. Linc.* anno xxx. [1877].

See also :—

Dana, J. D. Lithology : MINERALOGY.

Daubrée, Prof. A. Études synthétiques, etc. Pt. i. [Metamorphism.] *PHYSICAL GEOLOGY*, p. 215.

Leymerie, A. Lithology : MINERALOGY, and many papers amongst Topographical Geology.

METEORITES.

Ball, R. S. Speculations on the Source of Meteorites. *Proc. R. Irish Acad.* ser. 2, vol. i. p. 227.

Daubrée, Prof. A. Note sur une météorite appartenant au groupe des eukrites, tombée le 14 juillet 1845 dans la commune de Teilleul (Manche). *Bull. Assoc. Sci. France*, t. lxxxviii. p. 544.

——. Sur une météorite sporadosidère tombée le 31 janvier 1879, à la Bécasse, commune de Dun-le-Poëlier (Indre). *Compt. Rend.* t. lxxxix. pp. 597, 598.

Flight, Dr. Appendix to Report on Luminous Meteors. *Rep. Brit. Assoc.* 1879, pp. 125–131.

Notices Daubreelite in certain meteorites, with accounts of recent researches on Oviyak Irons, and on Tieschitz and Estherville meteorites.

Galle, Prof. Dr. Ueber das seltene Ereigniss des am 17. Mai stattgehabten Meteorsteinfalles bei Gnadenfrei. [On rare Phenomena observed in the fall of the Gnadenfrei Meteorite.] *57 Jahresber. schles. Ges.* pp. 166–169.

Galle, J. G., and A. von Lasaulx. Bericht über den Meteorsteinfall bei Gnadenfrei am 17. Mai, 1879. *Monatsb. k. preuss. Ak. Wiss.* pp. 750–771 ; 2 plates.

Hall, Townshend M. Contributions towards a History of British Meteorites. *Min. Mag.* vol. iii. no. 13, pp. 1–17.

Hinrichs, G. Chute de météorites qui a eu lieu le 10 mai 1879 dans le comté d'Emmet (Etat d'Iowa). *Compt. Rend.* t. lxxxviii. p. 1219.

With remarks by **Daubrée**.

Klein, C. Die Meteoritensammlung der Universität Göttingen am 2. Januar 1879. [The Collection of Meteorites in the University of Göttingen, on 2 January, 1879.] *Nachr. kön. Ges. Wiss. Göttingen*, No. 2. [Noticed in *N. Jahrb.* p. 408.]

This collection was commenced by Hausmann, continued by Stromeyer and Blumenbach, and enriched by gifts from Sartorius von Waltershausen and especially from Wöhler. On 2 Jan. 1879, it contained represen-

tatives of 115 localities of meteoric stones, having a total weight of 12,260·85 gr. ; and 91 localities of meteoric irons, having an aggregate weight of 23,070·40 gr. F. W. R.

Lasaulx, Prof. Dr. A. von. Die mineralogische Beschaffenheit der Gnadenfreier Meteorite. [Composition of the Gnadenfrei Meteorite.] *57 Jahresber. schles. Ges.* pp. 169, 170.

Meunier (St.). Recherches expérimentales sur les grenailles métalliques des météorites sporadosidères. *Compt. Rend. t. lxxxviii.* pp. 794-796.

—. Rapport sur des recherches expérimentales relatives aux fers nickelés météoritiques et aux fers carburés natifs du Groënland. *Compt. Rend. t. lxxxix.* pp. 215-219.

Peckham, Prof. F. S. Fall of a Meteorite on the 10th of May, in Iowa. *Amer. Journ. ser. 3, vol. xviii.* p. 77.

The mass is half stony, half metallic (iron, nickel, and tin), olivine, feldspar, and pyroxene.

Rammelsberg, C. Ueber die Fortschritte in der Kenntniss der chemischen Natur der Meteoriten. *Monatsber. k. preuss. Ak. Wiss.* pp. 371-378.

Shepard, Prof. C. U. On the Estherville, Emmet County, Iowa, Meteorite of May 10th, 1879. *Amer. Journ. ser. 3, vol. xviii.* pp. 186-188. [See Peckham, above.]

The largest piece, 431 lbs., consists of chrysolite and iron with schreibersite, anorthite, chassignite?, and chromite. Structure highly crystalline, nowhere granular. W. H. D.

Trautschold, H. [Russian Meteorite.] *N. Jahrb. Heft ii.* pp. 144, 145.

Records fall of a meteorite in the Gov. of Toula on the 8 (=20) Nov. 1878. The fall was accompanied by a thunder-like noise; the stone was about the size of a man's head, and penetrated a foot into the ground. It was partly broken up and powdered by the peasantry for medicinal use. The stone is a chondrite, with grey ground-mass, fine granules of nickel-iron, and larger grains of magnetic pyrites.

F. W. R.

Tschermak, Dr. Der Meteoritenfall bei Tieschitz in Mähren. [Meteorite fall.] *Sitz. k. Ak. Wiss. Wien, Bd. lxxviii. Abth. 1,* pp. 440-443, 580-582.

This meteorite fell into a ploughed field close to some workpeople at Tieschitz, Moravia, 15 July, 1878. Sp. gr. 3·59. Analysis shows it to

have the composition of a chondrite, metallic iron 11·26 p. c. The structure is that of a chondrite with round spherules of finely fibrous substance: these cause the author to somewhat modify a previously expressed view as to these round grains; he now holds they cannot be due to friction. Olivine, bronzite, enstatite, augite, nickel-iron, and magnetite pyrites are present. Felspar could not be detected.

E. B. T.

Wöhler, [The late Prof.]. *Meteoreisen von Lenarto*. [Meteoric Iron of Lenarto.] *N. Jahrb.* p. 370.

Correction of a locality of a meteoric iron at Göttingen. It is probably from Lenarto, and not, as supposed, from Poland.

SUPPLEMENT FOR 1874, 1877.

Keller, F. *Sopra un frammento di aerolite trovato il giorno 8 di maggio testè decorso presso Orvinio*. [The Orvinio Meteorite.] *Atti R. Ac. Linc.* t. xxvi. p. 613. [1874.]

See the GEOLOGICAL RECORD for 1874, p. 220.

Lasaulx, Prof. A. von. *Ueber den Meteoritenfall zu Gorlitz am 4. December v. J.* 56 *Jahres-Ber. schles. Ges. Kultur*, pp. 56, 57. [1877.]

See also :—

Daubrée, Prof. A. *Etudes synthétiques*. Part ii. : p. 215.

MINERALOGY.

Sub-Editor F. W. RUDLER, F.G.S.

Achiardi, A. d', and A. Funaro. Su di alcune particolarità di certi Feldispati della Calabria e loro analisi chimica. [Calabrian Feldspar.] *Proc. verb. Soc. Tosc. Sci. Nat. Pisa*, vol. i. pp. xciv, xcv. Gives analyses, and the formula $\text{KNaAl}_2\text{Si}_6\text{O}_{18} + \text{SiO}_2$.

Adams, F. D. On the Presence of Chlorine in Scapolites. Contributions from the Laboratory of the Sheffield Scientific School. No. LIV. *Amer. Journ. ser. 3*, vol. xvii. pp. 315-320.

Describes the mode and the results of analyses of 3 specimens from Ripon, Quebec. Nearly 4 p. c. of NaCl occurs in it.

Aitkin, Thomas. Note on the modes of Occurrence and Localities of Abriachanite. *Min. Mag.* vol. iii. no. 13, pp. 69-71.

Andrews, Thomas. On some curious Concretionary Balls derived from a Colliery Mineral Water. *Chem. News*, xl. pp. 103, 104.

The concretions were found in the feed-tank of boilers at the Wortley Silkstone Colliery. They contain 62.86 per cent. of peroxide of iron.

Arzruni, A. Ueber die Coquimbit. *Zeitschr. Kryst. Min.* Bd. iii. Hefte v., vi. pp. 516-524.

This little-known Chilian mineral is hexagonal, with the chemical formula $(\frac{1}{4}\text{Al}_2 + \frac{3}{4}\text{Fe}_2)(\text{SO}_4)_2 + 9\text{H}_2\text{O}$.

Attwood, G. On a Gold Nugget from South America. *Journ. Chem. Soc.* vol. xxxv. pp. 427-429.

Babcock, Dr. S. M. Ueber den Cölestin aus dem Muschelkalk von Jühnde bei Göttingen. [Celestine from the Muschelkalk of Jühnde, near Gottingen.] *N. Jahrb.* pp. 835-838, woodcut.

Describes the crystalline forms, the chemical composition, and the optical characters.

Bauer, Max. Die Krystallform des Cyanit's. [Crystal Form of Cyanite.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 244-253.

Baumhauer, H. Beitrag zur Kenntniss der Glimmer insbesondere des Zinnwaldits. [Addition to our Knowledge of the Micas, especially of Zinnwaldite.] *Zeitschr. Kryst. Min.* Bd. iii. Heft ii. pp. 113-121, plate.

An examination of the figures etched on Zinnwaldite by hydrofluoric acid shows that the mineral is monoclinic rather than triclinic.

1879.

Baumhauer, H. Ueber den Perowskit. *Zeitschr. Kryst. Min.* Bd. iv. Heft ii. pp. 187-200, plate (mainly crystallographical).

——. [On Boracite.] *Zeitschr. Kryst. Min.* Bd. iii. Heft iv. pp. 337-351; 2 plates.

Examines sections of etched and unetched crystals in ordinary and polarized light, and finds that crystals of boracite are rhombic, not regular; compares his views of the building up of boracite crystals with those of Mallard. T. W. D.

——. Ueber künstliche Kalkspath-Zwillinge nach $-\frac{1}{2}$ R. [Artificial Calcite-twins, $-\frac{1}{2}$ R.] *Zeitschr. Kryst. Min.* Bd. iii. Hefte v., vi. pp. 588-591; 2 woodcuts.

Becke, Fr. Ueber die Zwillingsbildung und die optischen Eigenschaften des Chabasit. [Twinning of Chabasite.] *Min. petr. Mitt.* ii. pp. 391-418, pls. 4, 5; and *Sitz. k. Akad. Wiss. Wien, math.-nat. Cl.*, Bd. lxxx. pp. 90-95.

The conclusion of the examination of Chabasite from various localities is that the rhombohedron consists of at least six individuals, optically shown to be triclinic; the simple individual is cleavable in three directions corresponding to the faces of the rhombohedron. These six or more individuals are united by a double twinning, the two twin planes being faces of the prisms of second order $1\bar{1}0$ and $01\bar{1}$ inclined $118^{\circ}5$ to one another. Two types of structure are described, and a third indicated as probable. Herschelite, monoclinic, is twinned in a different manner; Seebechite is also monoclinic. E. B. T.

Berwerth, F. Ueber Nephrit aus Neu-Seeland. *Sitz. k. Ak. Wiss. Wien, math.-nat. Cl.*, Bd. lxxx. pp. 102-115.

——. Ueber Bowenite aus Neu-Seeland. *Sitz. k. Ak. Wiss. Wien, math.-nat. Cl.*, Bd. lxxx. pp. 116-118.

Besnard, Dr. Anton. Die Mineralogie in ihren neuesten Entdeckungen und Fortschritten im Jahre 1878: xxxi. systematischer Jahresbericht. [Report on Progress of Mineralogy in 1878.] *Corr.-Blatt zool.-min. Ver. Regensburg*, 33 Jahrg. pp. 9-36.

Besnou, L. Examen d'un nouveau minéral de mercure, sublimé corrosif natif. [Native Corrosive Sublimate.] *Compt. Rend. Assoc. Franc.* sess. 7, pp. 533-535.

The specimen was from near Iquique, in the desert of Atacama, and was of cubic form.

Biasoletto, —. Sulla provenienza della pelargosite. *Boll. Soc. adr. Sci. Nat.* vol. iv. no. 2.

Bischof, C. [Bauxite in Germany.] *Dingler's Polyt. Journ.* Bd. cccxxxiii. p. 465.

Blanchin, —. Mémoire sur les sels arsenico-ferriques naturels de la Dominique. Pp. 43. 8vo. Paris.

- Blum, Dr. J. R.** Die Pseudomorphosen des Mineralreichs. Vierter Nachtrag. [Mineral Pseudomorpha.] Pp. 212. 8vo. *Hadelberg*. [Fourth appendix to a work published in 1843.]
- Bořický, Prof. Dr. E.** Beiträge zur chemisch-mikroskopischen Mineralanalyse. [Chemico-microscopical Analysis of Minerals.] *N. Jahrb.* pp. 364–366.
- Bouchy, Abbé.** La mésotype (minéral français). *Feuille des Jeunes Naturalistes*, no. 101.
- Brackebusch, —.** Las especies Minerales de la República Argentina. [Minerals of the Argentine Republic.] *An. Soc. cient. Argent.* t. vii. ent. 5, t. viii. ent. 1.
- . Addenda á las especies Minerales de la República Argentina. [Addenda to above.] *An. Soc. cient. Argent.* t. viii. ent. 5.
- Braun, Jakob.** [On Nickelspeise (Placodin).] *Zeitschr. Kryst. Min.* Bd. iii. Heft iv. pp. 421–425, woodcut.
- Brezina, Aristides.** Optische Studien I. *Zeitschr. Kryst. Min.* Bd. iii. Heft iii. pp. 259–272; 2 figs.
 Researches on the interference-phenomena observed by Von Kobell in natural and artificial marls of Cyanite and Gypsum; and on the relations of pseudosymmetry. T. W. D.
- . Ueber den Autunit. *Zeitschr. Kryst. Min.* Bd. iii. Heft iii. pp. 273–278; 6 figs.
 Purely crystallographical.
- . Herrengrundit, ein neues basisches Kupfersulfat. [Herrengrundit, a new basic Copper Sulphate.] *Zeitschr. Kryst. Min.* Bd. iii. Heft iv. pp. 359–380; 5 figs.
 Description of the mineral, and of allied substances which belong mainly to the brochantite group.
- . Die Interferenz-Erscheinungen der Krystallplatten, in color. Wandtafeln. I. Serie. 4 coloured fol. plates. *Vienna*.
- Brögger, W. C.** Untersuchungen norwegischer Mineralien. II. [Researches on Norwegian Minerals. II.] *Zeitschr. Kryst. Min.* Bd. iii. pp. 471–488, plates.
 Descriptions under the following heads:—*Zoisite* (Thulite) from Souland; Crystalline form of *Kjerulfite* from Bamle; *Natrolite* from Arö; *Aeschynite* from Hitterö, and some remarks as to the crystalline form of *Euxenite* and *Polykrase*. For the most part crystallographical notices. E. E.
- Brögger, W. E.** Atakamit von Chili. [Atacamite from Chili.] *Zeitschr. Kryst. Min.* Bd. iii. pp. 488–491, pl. xi. fig. 1–3.
 Crystallographic measurements.

Brun, A. Zur Berechnung hexagonaler Krystalle. *Zeitschr. Kryst. Min.* Bd. iv. Heft iii. pp. 273-276; 2 woodcuts.

Brush, [Prof.] G. J., and [Prof.] E. S. Dana. On the Mineral Locality in Fairfield County, Connecticut, with the description of two additional new species. *Amer. Journ.* ser. 3, vol. xvii. pp. 359-368 [see GEOLOGICAL RECORD for 1878, p. 239]; also, in German, in *Zeitschr. Kryst. Min.* Bd. iii. Heft vii. pp. 577-587, Bd. iv. Heft i. pp. 69-75.

Crystallographical and other details, with analyses by **S. L. Penfield, H. L. Wells, and F. P. Dewey**, of *Fairfieldite*, *Fellowite* (new calcio-manganese phosphate), *Reddingite*, and altered *Lithiophilite*. W. H. D.

—, —. On the Mineral Locality in Fairfield County, Connecticut. *Amer. Journ.* ser. 3, vol. xviii. pp. 45-50.

Further description and analyses by **S. L. Penfield and H. L. Wells** of lithiophilite, eosphorite, a green mineral mixture of the chlorite group, chabazite, and rhodochrosite. W. H. D.

Bücking, H. ["Crystallized Sandstone."] *N. Jahrb.* Heft i. pp. 54, 55.

Records the occurrence of pseudomorphs of sandstone after calcite in the Bunter Sandstone of Allerheiligen in the Black Forest.

Burghardt, Dr. C. A. On the Origin of some Ores of Copper. *Mem. Lit. Phil. Soc. Manch.* ser. 3, vol. 6, pp. 171-180, 253-258. [Reprinted from *Proc.*, see GEOLOGICAL RECORD for 1878, p. 240.]

—, —. Mineralogical Notes. *Chem. News*, xl. pp. 177, 178.

Notes on Precious Garnet (almandine) from a fault in a coal-seam in the Shipperbottom Mine, near Grant's Tower, Ramsbottom, Lancashire, and on Fibrous Rock-salt, the formation of which is referred to the presence of magnesium sulphate and chloride in the liquid from which the salt separates. F. W. R.

Carnot, A. Sur une variété de sulfate de fer contenant du manganèse (Luckite). *Bull. Soc. Min. France*, t. ii. pp. 168, 169.

Christy, S. B. On the Genesis of Cinnabar Deposits. *Amer. Journ.* ser. 3, vol. xvii. pp. 453-463.

At New Almaden, California, a cinnabar vein occurs between serpentine (below) and magnesian schist limestone and sandstone (above). Sulphuretted and carbonated alkaline springs are frequent (analysis of the new Almaden Vichy water is given). In such water heated under pressure black HgS is converted into cinnabar. Hence it is likely the deposit was formed in the wet way, not by sublimation; reasons being given against the latter theory. W. H. D.

Collie, Norman. On the Célestine and Baryto-célestine of Clifton. *Proc. Bristol Nat. Soc.* n. ser. vol. ii. pp. 292-300.

Gives analyses; and records the occurrence of Baryto-célestine in the British Isles for the first time.

Collins, J. H. Additional Note on Iron Crystals, and on some distorted Quartz Crystals. *Min. Mag.* vol. ii. no. 12, pp. 261, 262.

——. Additional Notes on Penwithite. *Min. Mag.* vol. iii. no. 13, pp. 89, 90.

——. Note on Christophite from St. Agnes. *Min. Mag.* vol. iii. no. 13, pp. 91, 92, woodcut.

——. The History of a Remarkable Gem, the "Maxwell Stuart" Topaz. *Min. Mag.* vol. iii. no. 13, pp. 93–95; 2 plates.

——. Note on the Minerals of the Island of Cyprus. *Min. Mag.* vol. iii. no. 14, pp. 120, 121.

Comstock, W. J. Analysis of the Tetrahedrite from Huallanca, Peru. Contributions from the Laboratory of the Sheffield Scientific School. No. LV. *Amer. Journ.* ser. 3, vol. xvii. pp. 401, 402.

Sulphide of Sb, As, Ag, Cu, Fe, and Zn. Formula $R_2S_3 + 3 \cdot 6RS$.

Corsi, Arnaldo. Ancora sulle Prehniti della Toscana. [Tuscan Prehnite.] *Boll. R. Com. geol. Ital.* pp. 155–159. [See GEOLOGICAL RECORD, 1878, p. 242.]

Maintains that the analysis of Monte Catini prehnite by Prof. Bechi does not prove that the substance was pure.

Cossa, Prof. A. Sulla diffusione del cerio, del lantano e del didimio. [Distribution of Cerium, Lanthanum, and Didymium.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 25, 26; and *Mem.* vol. iii. pp. 17–34, plate (spectra).

These metals are found by spectrum analysis to be present in apatite from Spain, Austria, Russia, Norway, Canada, Italy, United States, France, and Germany; in Italian marbles, in Italian, French, and English scheelite, in Parisite of New Granada, and in Italian Turnerite.

W. H. D.

——. Sui cristalli microscopici di rutilo contenuti in una eclogite di Val Tournanche. [Microscopic Crystals of Rutile in Eclogite.] *Atti R. Ac. Torino*, vol. xv. fasc. 1.

——. Sul Feldispato corindonifero del Biellese. *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 229, 230.

Crookes, William. On Radiant Matter. *Chem. News*, xl. pp. 91–93, 104–107, 127–131.

Contains results of experiments on the phosphorescence of diamond, ruby, and other minerals, when exposed to radiant discharge in properly exhausted vessels.

F. W. R.

Cumenge, —, and — Fuchs. Sur l'état dans lequel se trouvent les métaux précieux dans quelques-unes de leurs combinaisons : minerais, roches, produits d'art. [Precious Metals, in Ores, Rocks, and Art Products.] *Compt. Rend.* t. lxxxviii. p. 587.

Dahl, Tellef. Ueber Norwegium, ein neues Schwermetall. [A new Metal.] *Zeitschr. deutsch. geol. Ges.* Bd. xxi. pp. 480–483.

In analysing a copper-nickel from Oterö, a substance was obtained described as a new metal, white and metallic looking. Fusing point over 350° C. E. B. T.

Damour, —. Note sur un grenat chromifère trouvé au pic Posets, près la Maladetta (Pyrénées). [Chrome Garnet from the Pic Posets.] *Bull. Soc. Min. France*, t. ii. pp. 165, 166.

——. Note sur la Venasquite. *Ibid.* t. ii. pp. 167, 168.

Dana, Prof. J. D. A Manual of Mineralogy and Lithology: containing the Elements of the Science of Minerals and Rocks. . . . Ed. 3. Pp. viii, 474. 8vo. Price 7s. 6d.

Daw, F. R. W. Emplectite. *Chem. News*, xl. p. 225.

Announces discovery of this species at the Aamdal Copper Mines, Upper Telemarken, Norway; and gives analysis, leading to the formula: $\text{CuS} + \text{Bi}_2\text{S}_3$. F. W. R.

Des Cloizeaux, A. [Microcline.] *Nyt Mag. Nat.*

Dölter, Dr. C. Ueber die Constitution der Pyroxengruppe. [Pyroxene Group.] *Min. petr. Mitt.* ii. pp. 193–229.

Discusses the chemical composition of the Pyroxene group, including Spodumene, and the silicates that enter into them in definite proportions. The variations of their crystal-angles in relation to chemical composition is considered, and with increase of iron and alumina a variation is found in all the zones: even in crystals from the same place and of the same origin there are variations; these vary from diopside in different senses, so that the mean is not very far from diopside values. Diopside is nearest to the rhombic augites, but Wollastonite is nearest to Akinite as far as relations of the axes are concerned. E. B. T.

——. Ueber die chemische Zusammensetzung des Arfvedsonits und verwandter Mineralien. [Chemical Constitution of Arfvedsonite and Allied Minerals.] *Zeitschr. Kryst. Min.* Bd. iv. Heft i. pp. 34–41.

Arfvedsonite, Krokydolite, Glaukophane (Gastaldite), &c. belong to the Amphibole group, and consist of $\text{Na}_2\text{R}_2\text{Si}_4\text{O}_{12}$, where R in the first = Fe, in the last = Al, together with $\text{CaR}_2\text{Si}_4\text{O}_{12}$, an insignificant quantity of $\text{RAl}_2\text{Si}_4\text{O}_{12}$ in Gastaldite, and lastly $\text{R}_2\text{Si}_4\text{O}_{12}$. T. W. D.

——. Ueber ein neues Harzvorkommen bei Köflach. *Mitth. nat. Ver. Steierm.* for 1878.

Describes a new mineral resin as Köflachite.

Domeyko, Prof. Ignacio. Mineralojia; que comprende principalmente las especies mineral. de Chile, Bolivia, Peru i Provincias Argentinas. Ed. 3. 8vo. *Santiago*. Pp. 765; 6 pls.

Drapiez, —. Guide pratique de minéralogie usuelle; exposition succincte et méthodique des minéraux, de leur composition chimique, de leurs gisements et leurs applications aux arts et à l'industrie. 18mo. Pp. 448.

Durand, —. Etude sur les sels naturels arsenico-ferriques de la Dominique. [Arsenio-ferrates of Dominique.] 8vo. Pp. 35. *Saint-Ouen*.

Evans, Dr. John. On some Fossils from the Northampton Sands. *Rep. Brit. Assoc.* for 1878, pp. 534, 535.

Describes casts of lithodomous borings in coral, originally filled with limonite, then converted into carbonate, then into hæmatite. The enclosing coral has been dissolved. W. T.

Fellöcker, P. Sigmund. Die chemische Formeln der Mineralien in geometrischen Figuren dargestellt. [Chemical Formulæ of Minerals represented by Geometrical Figures.] Pp. 158. *Linz*.

Firket, Adolphe. Découverte de la chalcoppyrite au charbonnage des Aix-Bonniers. [Chalcoppyrite at Aix-Bonniers Colliery.] *Ann. Soc. Géol. Belg.* t. vi. p. cxxxix.

Chemical and crystallographic examination showed the presence of the mineral, in fissures in Coal Measure sandstone, for the first time in Belgium. W. W.

— Sur la Millerite (Haarkies) du charbonnage du Hasard à Micheroux. [Millerite of Micheroux.] *Ann. Soc. Géol. Belg.* t. vi. p. clii.

Supplementary to notice in the GEOLOGICAL RECORD for 1878, p. 245.

— Sur une variété de galène pseudomorphique. [Pseudomorphic Galena.] *Ann. Soc. Géol. Belg.* t. vi. pp. clii, cliii.

In the form of Staurolite, from Brittany.

— Remarques sur la composition du minerai ferro-manganésifère de Moët-Fontaine (Raliér). [Composition of Iron-manganese Ore of Moët-Fontaine.] *Ann. Soc. Géol. Belg.* t. vi. pp. cliii-clvi.

New analyses, by **A. Ghilain**, show more manganese than the earlier ones did. See GEOLOGICAL RECORD for 1878, p. 66. Analyses of 5 specimens are given. W. W.

Fischer, H. Ueber die Bezeichnung von Farbenabstufungen bei Mineralien. [Designation of Shades of Colour in Minerals.] *N. Jahrb.* pp. 854–856.

Calls attention to our imperfect means of describing the colours of minerals, and recommends the use of the International Colour-scale

(Rade, Hamburg: Société sténochromique, Paris), as furnishing a standard series of tints to which the colours of minerals may be definitely referred.

F. W. R.

Frazer, Prof. P. Missing Ores of Iron. 8vo. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 531-542.

Frenzel, A. Mineralogisches aus Kaukasien. *Min. petr. Mitt.* pp. 125-136.

Among the minerals obtained by Dr. O. Schreider from the Trans-Caucasus are several zeolites, iron-ores, and ozokerite. *Urusite*, a new mineral, in minute crystals, orthorhombic, with composition $\text{Fe}_2\text{O}_3 \cdot 2\text{Na}_2\text{O} \cdot 4\text{SO}_3 \cdot 8\text{H}_2\text{O}$, is described.

E. B. T.

Frenzel, F. [Lithiophorite and Wapplerite.] *N. Jahrb.* Heft i. pp. 55-57.

Claims priority of discovering Lithiophorite. Announces the Samson lode at Andreasberg, in the Hartz, as a new locality for Wapplerite.

Fresenius, W. Ueber den Phillipsit und seine Beziehungen zum Harmotom und Desmin. [Phillipsite and its Relations with Harmotome and Desmine.] *Zeitschr. Kryst. Min.* Bd. iii. Heft i. pp. 42-72; 3 woodcuts.

Part I. is crystallographical: Phillipsite is monoclinic and isomorphous with Harmotome and Desmine. Part II. is chemical. The isomorphism of calcium and barium harmotomes is proved. It is suggested that the zeolites may be grouped in a small number of substitution series, in which the individuals will be determined by crystallographical characters and by the percentage of water: nearly all zeolites have the formula $\text{RO} \cdot \text{R}_2\text{O}_3 \cdot x\text{SiO}_2 + y\text{aq}$. Phillipsite and Chabasite are probably the same substance with different proportions of water of crystallization.

T. W. D.

Gabrowsky, Dr. J. L'Ozokerite et la Cérésène de Gallicie. [Ozokerite and Ceresine of Galicia.] *Corps Gras Industr.* 6 ann. no. 4, pp. 40-42.

Gaudin, —. Sur l'application de ma théorie atomique à divers minéraux. *Compt. Rend.* t. lxxxviii. p. 158.

Geinitz, F. E. Zur Systematik der Pseudomorphosen. *Min. petr. Mitt.* ii. pp. 489-498.

Defends his systematic representation of pseudomorphs, discussing the various stages in formation of pseudomorphs, and proposes the following classification:—1. Paramorphosis, formation of pseudomorphs without loss and without addition by molecular change of substance. 2. Apomorphosis when there is loss of substance. 3. Epimorphosis when constituents are added. 4. Partial Allomorphosis for pseudo-

morphism with exchange of constituents, when there is palpable connection between the substances of the original and the pseudomorphing mineral. 5. Total Allomorphosis when there is a change of constituents without such connection. E. B. T.

Genth, Dr. F. A. Examination of the North Carolina Uranium Minerals. *Amer. Chem. Journ.* vol. i. p. 87; *Chem. News*, xl. pp. 210-212.

The nodules consist of a nucleus of uraninite surrounded by gummite (a mixture of uranium hydrate, uranotil, plumbic and baric uranate), and uranotil. *Phosphoranylite*, n. sp., is $(\text{UO}_2)_2\text{P}_2\text{O}_8 + 6\text{H}_2\text{O}$. Analyses of this, uranotil, and gummite are given. W. H. D.

Gibson, J. On the Composition of "Reh," an Efflorescence on the Soil of certain Districts of India. *Proc. R. Soc. Edin.* vol. x. pp. 277-280.

Goldsmith, E. Asphaltum and Amber from Vincenttown, N. J. *Proc. Ac. Nat. Sci. Philadel.* for 1879, pp. 40-42.

Describes the behaviour of these minerals (found in Cretaceous rocks) under heat and with solvents.

——. On Amber containing Fossil Insects. *Proc. Ac. Nat. Sci. Philadel.* pp. 207, 208.

Describes the chemical characters of amber of Tertiary age from Nantucket Island, Massachusetts.

Gonnard, F. Sur un nouveau Gisement de Szaboïte. *Bull. Soc. Min. France*, t. ii. pp. 150, 151.

——. L'existence de la Breislakite dans le trachyte à sanidine du roc du Capucin, au Mont-Dore. *Ibid.* t. ii. pp. 151-153.

——. Note sur les Associations minérales du Capucin (Mont-Dore). *Mém. Acad. Sci. Lyon*, vol. xxiv. pp. 77-89.

——. Note sur les Associations minérales que renferment certains Trachytes du Ravin du Riveau-Grand, au Mont-Dore. [Composition of Auvergne Trachytes.] *Mém. Ac. Lyon*, t. xxiv. pp. 161-176.

Grattarola, G. Studi cristallografici, ottici e chimici sopra alcuni Minerali. *Riv. Sci. Ind.* and *Proc. verb. Soc. Tosc. Sci. Nat.* vol. i. pp. xcvi-c.

Describes the crystallography, and gives analyses of Stilbite and Heulandite from Elba, Sweden, Färoe, and Iceland, and Zircon from Ceylon (renamed *Beccarite*, n. sp.). W. H. D.

- Guiscardi, —.** Sulla leucilite dell' Averno. *Rend. R. Ac. Sci. Napoli*, ann. xviii. fasc. 5.
- Habermehl, —.** Ueber die Zusammensetzung des Magnetkieses. [Composition of Magnetic Pyrites.] 18 *Ber. Oberhess. Ges.*
- Hall, Marshall.** Supplementary Notes on the Val d'Anniviers. *Min. Mag.* vol. iii. no. 12, pp. 256–260.
- Hankel, W. G.** Ueber d. photo- u. thermoelektrischen Eigenschaften d. Flusspathes. (Electr. Untersuchgn. XIV.) 4to. 3 col. pls. *Leipzig.*
- . Ueber die thermoelektrischen Eigenschaften des Apatits, Brucits, Coelestins, Prehnits, Natroliths, Skolezits, Datoliths und Axinit. *Ann. Phys. Chem.* n. F. Bd. vi. Heft 1.
- Harrington, B. J.** Report on the Minerals of some of the Apatite-bearing Veins of Ottawa County, Quebec. Pp. 52. 8vo. *Montreal.*
- Harrison, W. J.** Garnets in Charnwood Rocks. *Midl. Nat.* vol. ii. p. 77.
- Hauer, F. von.** Miemit von Zepce in Bosnien. *Verh. k.-k. geol. Reichs.* pp. 121–123.
Describes the reniform mineral, giving analyses of it and of the surrounding dolomite by **Conrad John.**
- . Rogengyps von Berchtesgaden. [Oolitic Gypsum from Berchtesgaden.] *Verh. k.-k. geol. Reichs.* p. 123.
Of recent formation.
- . Ein neues Vorkommen von Cölestin im Banate. *Verh. k.-k. geol. Reichs.* pp. 215, 216.
Crystallography of Celestine from Neocomian limestone N.W. of Steyerdof.
- Heddle, Prof. M. F.** A Brief Description of the Map of Shetland, issued with Vol. ii. of the *Min. Mag.* *Min. Mag.* vol. ii. no. 12, pp. 253–255.
- . The Geognosy and Mineralogy of Scotland. *Min. Mag.* vol. iii. no. 13, pp. 18–56; no. 15, pp. 147–177; geological maps, plates, and woodcuts.
- . Preliminary Notice of Substances which may prove to be New Minerals. *Min. Mag.* vol. iii. no. 13, pp. 57–68, woodcut.
The substances are named provisionally *Bhreckite*, *Xantholite*, and *Abriachanite*.

Heddle, Prof. M. F. On Haughtonite; a new Mica. *Min. Mag.* vol. iii. no. 13, pp. 72-84.

——. Note on Abriachanite. *Min. Mag.* vol. iii. no. 15, p. 193.

Helland, A. Om Kobalt- og Nikkelertsernes Forekomst i Norge. Pp. 45. 8vo. *Christiania. Nyt Mag. Nat.* Bd. iv. Heft 2.

——. [Pyrites in Norwegian Slate.] *Berg- Hütt. Zeitung*, p. 13.

Helmhacker, R. Einige Mineralien aus der Gruppe der Thone. [Some Minerals of the Clay Group.] *Min. petr. Mitt.* ii. pp. 229-268.

Examines especially these hydrated minerals to find the amount of moisture given off in desiccator at air temperature, or at 100° Cent. and higher temperatures, with corresponding change in sp. gravity. Many took over a fortnight before the loss of moisture ceased. Halloysite at 100° C. has the same composition as Kaolin, but differs in being amorphous. White Kaolin consists of microscopic hexagonal crystals. Variscite, $\text{Al}_2\text{P}_2\text{O}_8 + 4\text{aq}$, was found mixed with Diaspore and Halloysite. Schrötterite is considered a mixture of 78 p. c. Halloysite with 22 p. c. Variscite &c. Montmorillonite dried at 100° C. gave $\text{Al}_2\text{Si}_2\text{O}_{20} + 1\frac{1}{2}\text{aq}$. Razumovskyn and Pyrophyllite are similarly discussed.
E. B. T.

Hidegh, Dr. Koloman. Chemische Analyse ungarischer Fahlerze. [Hungarian Fahlerz.] *Min. petr. Mitt.* ii. pp. 350-358, and *Jahrb. k. ung. Geol. Anst.*

Analyses of Hungarian Fahlerz from five localities. The results do not quite agree with the values in the accepted formula $\text{Cu}_3\text{S}_7\text{As}_2$.

Hirschwald, J. Das Mikroskop-Goniometer, ein neues Instrument zum Messen von Krystallen mit spiegellosen Flächen. [Microscope-Goniometer, a new Instrument for measuring Crystals with dull faces.] *N. Jahrb.* pp. 301-308, plate and woodcut.

——. Bergkrystalle von Middleville, N. Y. [Rock crystal from Middleville.] *N. Jahrb.* pp. 377-379.

A study of the macroscopic and microscopic cavities in these Crystals and their enclosures.

——. Messungen mit dem Mikroskop-Goniometer. [Measurements with the Microscope-Goniometer.] *N. Jahrb.* pp. 539-546.

Hochstetter, Dr. F. von. Covellin als Ueberzugspseudomorphose einer am Salzberg bei Hallstadt gefundenen keltischen Axt aus Bronze. *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. 1, pp. 122-129, tab. 1, 2.

Describes a coating of Covelline, CuS , produced on a bronze celt by reaction of gypsum, &c., found in an old celtic working in the salt-mines near Hallstadt. A little chalcopyrite and aragonite was also a product of the action. Analysis given.
E. B. T.

Issel, A. Datolite e Scolesite del territorio di Casarza, Liguria.
Boll. R. Com. geol. Ital. x. pp. 530-544 ; 3 cuts.

The Datholite occurs as a vein enclosed between gabbro and serpentine ; the rocks on either side are slightly altered, probably by the thermal waters which deposited the mineral, the constituents of which were probably derived from the country rock. Boron is noted in serpentine in other places. The Scolezite occurs as spherules in altered serpentine at the same vein.

E. B. T.

Jannettaz, Ed. Sur les colorations du diamant dans la lumière polarisée. *Bull. Soc. Min. France*, t. ii. pp. 124-129 ; 3 figures.

—. Note sur une Ammonite transformée en argent natif. *Bull. Soc. géol. France*, sér. 3, t. vii. pp. 102, 103.

On an Oxfordian Ammonite from Caracoles, Brazil, converted into horn-silver, and partly reduced to native silver.

Jennings, E. P. Analyses of some Tellurium Minerals. *Trans. Amer. Inst. Min. Eng.* vol. vi. pp. 506-508.

John, K. Bergtheer und Ozokerit von Oran (Algier). [Rock Tar and Ozokerite from Oran, Algeria.] *Verh. k.-k. geol. Reichs.* pp. 104, 105.

Analyses.

Jorissen, Dr. A. Sur la présence de l'acide titanique dans le minerai de manganèse de Liernaux. [Titanic Acid in Liernaux Manganese Ore.] *Ann. Soc. Géol. Belg.* t. vi. pp. lxxviii, lxxix.

To the extent of 41 p. c.

—. Sur la présence de l'iode dans la phosphorite de Ramelot. [Iodine in Ramelot Phosphorite.] *Ann. Soc. Géol. Belg.* t. vi. p. clvi.

—. Sur la présence de l'Arsenic & du Vanadium dans la Delvauxite de la carrière Horion, à Visé ; Composition de ce Minéral. [Arsenic and Vanadium in the Delvauxite of Horion Quarry, Visé.] *Ann. Soc. Géol. Belg.* t. vi. pp. 39-44.

This very composite mineral contains organic matter. The analysis given is the first made of a specimen from Visé. Analyses of specimens from elsewhere are noticed.

W. W.

Julien, A. A. On the Composition of the Cymatolite from Goshen, Mass. *Amer. Journ.* ser. 3, vol. xvii. pp. 398, 399.

Named this mineral *Aglaité*, n. sp., in *Eng. Min. Journ.* April 7, 1877. Gives analysis, retaining the name as a variety only of *Cymatolite*.

W. H. D.

Julien, A. A. On Spodumene and its Alterations, from the Granite-veins of Hampshire County, Mass. *Ann. N. York Acad. Sci.* vol. i. nos. 10 & 11, pp. 318–354, plate xiii.

Gives the localities of occurrence, analyses, theoretical constitution, and the microscopical characters of Spodumene. Analyses are also given of the following pseudomorphous minerals which accompany the Spodumene:—Cymatolite, Killinite, Muscovite, Albite, and Quartz. A section, in descending order, of the crystalline schists of the region shows that this mineral was found in Staurolitic Mica-schist.

R. B. N.

Junghann, Dr. G. Zur theoretischen Krystallographie. [Theoretical Crystallography.] *N. Jahrb.* pp. 360–362.

A mathematical paper.

Kalkowsky, Ernst. Ueber die Thonschiefernädelchen. [Acicular Crystals of Clay-slates.] *N. Jahrb.* pp. 382–387.

Since Zirkel called attention, in 1871, to the microscopic needles which occur in Silurian and Devonian clay-slates, their mineralogical constitution had remained undetermined. The author after great trouble succeeded in isolating these microliths from a slate from Caub on the Rhine, and obtained sufficient quantity for a rough quantitative analysis. This seemed to show that they were acicular crystals of *staurolite*.

F. W. R.

——. Ueber Krystalsystem und Zwillingsbildung des Tenorites. [Crystallographic System and Twin-formation of Tenorite.] *Zeitsch. Kryst. Min.* Bd. iii. Heft iii. pp. 279–287; 2 figs.

Kerl, B. Probirbuch. Kurzgefasslich Anleitung zur docimastischen Untersuchungen von Erzen, Hütten und anderen Kunstproducten auf trockenem und nassem Wege. [Textbook of Analysis of Ores, &c.] 8vo. *Leipzig*.

Klebs, R. Ueber Brauneisensteingeoden, mit besonderer Berücksichtigung der in Ost- und Westpreussen vorkommenden. [Limonite Geodes, especially in Prussia.] Pp. 16. 4to. *Königsberg*.

Kleefeld, —. Die Halbedelsteine. [Semi-gems.] 8vo. *Berlin*.

Klein, [Prof.] C. Mineralogische Mittheilungen. VI. [Mineralogical Notes. No. VI.] *N. Jahrb.* pp. 518–538, plate.

Crystallographic and optical description of the Felspar of Mt. Gibeles in Pantellaria, which proves it to be *oligoclase*. Descriptions of the *Amazon-stone* of Lille Hoseid in Drangedaal, S.W. of Christiania; *Elæolite* of the I. of Laaven in the Langesundfjord, Norway; and of a twin crystal of *sodalite* from the same locality.

F. W. R.

Klien, Dr. Paul. [Greenland Cryolite; Jordansmühl Diaspore; Swedish Manganosite; Orthoclase-twins in Granite; Prehnite and Pyrolusite, Jordansmühl.] *56 Jahres-Ber. Schles. Ges. Kultur*, pp. 61-66.

Klocke, F. Ueber das Verhalten der Krystalle in Lösungen welche nur wenig von ihrem Sättigungspunkt entfernt sind. [Behaviour of Crystals in Solutions which are near their points of Saturation.] *Zeitschr. Kryst. Min.* Bd. iv. Heft i. pp. 76-82.

Combats the views of Lecoq de Boisbaudran—*Compt. Rend.* lxxx. 1, 888, lxxx. 11, 1007, and 1450 (1875).

——. Ueber die optische Structur des Eises. [Optical Structure of Ice.] *N. Jahrb.* pp. 272-285.

Klockmann, F. [Note on Orthoclase Twins in Silesian Granite.] *Zeitschr. deutsch. geol. Ges.* xxxi. pp. 421-427, fig. 1-3.

Knop, A. Ueber künstliche Erzeugung hohler Pseudomorphosen. [Artificial Production of Hollow Pseudomorphs.] *Zeitschr. Kryst. Min.* Bd. iv. Heft iii. pp. 257-262.

Kobell, F. v. Les Minéraux; guide pratique pour leur détermination sûre et rapide au moyen de simples recherches chimiques par voie sèche et par voie humide. 3^e édition française, traduite et revue par le comte Ludovic de la Tour du Pin, de l'Académie des Sciences. Avant-propos et nombreuses additions par **F. Pisani**, professeur de chimie et de minéralogie. Pp. xxviii, 163. 8mo. *Paris*. Ed. 1 noticed in the *GEOLOGICAL RECORD* for 1874, p. 239.

Koch, A. Neue Mineralien aus dem Andesit des Aranger Berges in Siebenbürgen. [New Minerals found in Andesite, Aranger Berg.] *Zeitschr. Kryst. Min.* Bd. iii. Heft iii. pp. 306-308; 3 figs.

Pseudobrookite crystallizes in the rhombic system, and is a dimorphic modification of Titaneisen. Szaboite is asymmetric, and has the formula $11\text{Fe}_2\text{Si}_3\text{O}_9 + 2\text{CaSiO}_3$. These two minerals occur with tridymite in hollows in Andesite in such a way as to suggest formation by sublimation. T. W. D.

Koenig, Prof. G. A. Mountain Soap of California. *Proc. Ac. Nat. Sci. Philadel.* for 1878, pp. 405, 406.

Analysis shows it to be a mixture of various minerals.

——. Mineralogical Notes: Randite. *Proc. Ac. Nat. Sci. Philadel.* for 1878, pp. 408, 409.

Analysis of this new mineral from granite of Philadelphia gives $\text{Ca}_3\text{U}_2\text{C}_6\text{O}_{20} + 3\text{H}_2\text{O}$.

Kokscharow, N. v. Genaue Messung der Epidotkristalle aus der Knappenwand im oberen Sulzbachthal. [Goniometry of Sulzbach Epidote.] Pp. 96. 8vo. *St. Petersburg*.

——. Materialien zur Mineralogie Russlands. Bd. viii. pp. 1–128, fig. gr. 8vo. *St. Petersburg*.

Koninck, L. L. de. [Quartz Crystals from Fissures in Diorite, Quenast.] *Ann. Soc. Géol. Belg.* t. vi. pp. xc, xci.

Terminated at one end by a number of small pyramids instead of by one pyramid only.

——. Sur le quartz noir de Flémalle, d'Angleur, &c. [Black Quartz.] *Ann. Soc. Géol. Belg.* t. vi. pp. cxviii–cxx. Describes specimens from limestone and from limonite.

——. A propos de l'eau des ardoisières de Vielsalm. [Water of Vielsalm Quarries.] *Ann. Soc. Géol. Belg.* t. vi. pp. cxx–cxxii. Discusses the relation between water and the rocks. Nickel was found, the second occurrence in the country.

——. Recherches sur les minéraux belges. *Bull. Ac. R. Belg.*

Krenner, Prof. J. [Description of a Collection of Minerals.] *Lit. Ber. Ungarn*, Bd. iii. pp. 173–175.

Remarks on the Semsey Collection in the National Museum.

——. Tellursilber aus Siebenbürgen. *Termész. Közl.* köt. xi. Oct.

Landauer, J. Blowpipe Analysis. Authorized English Edition by **J. Taylor and W. E. Kay.** *London*.

Gives the mode of determining minerals, with Plattner's tables.

Lang, O. Mineralogische Notizen von einer Reise in Skandinavien. *N. Jahrb.* 356.

Lasaulx, A. v. Mineralogische Notizen. [Mineralogical Notes.] *Zeitschr. Kryst. Min.* Bd. iv. Heft ii. pp. 162–186; 1 pl., 23 figs.

1. Titanomorphit, a new calcium titanate, $\text{CaO} \cdot 2\text{TiO}_2$, occurs in gneiss formation of Eulengebirge, as fibrous granular aggregate round a core of rutile or titanite iron; it agrees with titanite in its optical properties, with which it appears to be isomorphous—thus exhibiting conclusively the isomorphism of titanite and silicic acid.
2. Idocrase from Gleinitz and Johnsberg, near Jordansmühl, in Silesia.
3. Gismondine from the basalt of Schlauroth, near Görlitz. T. W. D.

——. Mineralogical Notes. *Zeitschr. Kryst. Min.* Bd. iii. Heft iii. pp. 288–298; 7 figs.

1. Szaboite from Biancavilla, Etna. 2. Szaboite from Riveau Grand, Mt. Dore. 3. Eisenglanz from Biancavilla. Sartorius von Waltershausen's brookite from Mt. Calvario is shown to be triclinic, and identical with Koch's szaboite from Aranyer Berg in Transylvania, and with a mineral from Riveau Grand. The beautiful Eisenglanz from Mt. Calvario, Biancavilla, affects twin forms of characteristic type.

T. W. D.

Lasaulx, Prof. Dr. von A. Ueber die Erscheinungen der Doppelbrechung und des Dichroismus, die durch Druck an Krystallen der natürlichen Silberhaloide hervorgerufen werden können. 57 *Jahresb. Schles. Ges.* pp. 171, 172.

——. [On a new and simple Crystal Holder for the Goniometer.] 57 *Jahresb. Schles. Ges.* pp. 175, 176.

——. [Tridymite, Analcime, Desmine.] 56 *Jahres-Ber. Schles. Ges. Kultur*, pp. 57–60.

——. Titanomorphit, ein neues Mineral. [Titanomorphite, a new Mineral.] *N. Jahrb.* pp. 568, 569.

Occurs with rutile at Lampersdorf, near Reichenbach, in Silesia.

Laspeyres, H. Mineralogische Bemerkungen. [Mineralogical Observations.] Part V. *Zeitschr. Kryst. Min.* Bd. iii. Hefte v. u. vi. pp. 525–576; 1 woodcut. Part VI., Bd. iv. Heft iii. pp. 244–256.

Chemical examination of the Epidote group. The results of older analyses are fully discussed, and compared with those recently obtained by the author—the main object of both sets of investigations being to determine by chemical analysis whether all epidotes and zoisites have the same chemical constitution, and to obtain a satisfactory formula for these minerals.

Sericite is shown not to be a distinct mineral, but only compact potash mica.

T. W. D.

Leidy, Prof. Explosion of a Diamond. *Phil. Mag.* ser. 5, vol. viii. p. 572. (From *Proc. Ac. Nat. Sci. Phil.*)

A diamond exploded under the sun's rays, probably from the expansion of a volatile liquid in a cavity.

Lewis, W. J. Note on the Analysis of the Rhombohedral System. *Phil. Mag.* vol. vii. pp. 176–178.

A new method of obtaining formulæ to determine the indices of a form in the rhombohedral system from the measured angles, and the converse.

F. D.

Leymerie, A. *Eléments de Minéralogie et de Lithologie.* Ed. 4. Pp. x, 283. 12mo. *Paris.*

Ed. 3 entered in the GEOLOGICAL RECORD for 1878, p. 254.

Liebisch, Th. Zur analytisch-geometrischen Behandlung der Kystallographie. [Application of Analytical Geometry to Crystallography.] *Zeitsch. Kryst. Min.* Bd. iii. Heft i. pp. 25-41; 3 cuts: continued from Bd. ii. p. 90 [see GEOLOGICAL RECORD for 1877, p. 242]; Bd. iv. Heft iii. pp. 263-272.

Mathematical.

Limur, Comte de. Notes sur quelques substances minérales ou gisements dans les Hautes-Pyrénées. [Minerals of the Hautes-Pyrenees.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 536-539.

Couzeranite, sphene, fer oligiste, and limurite; of the last Zirkel gives a description.

——. Note sur quelques substances minérales rares en gisement dans l'île de Groix (Morbihan). Pp. 7. *Bull. Soc. polymat. Morbihan*, 1 semestre.

Lindström, G. Thaumasiat, ett nytt mineral från Åreskutan. [Thaumasite, a new Mineral from Mt. Åreskuta, Sweden.] *Befv. K. Vet.-Akad. Förh.* 1878, n. 9, pp. 43-46.

Analyses given ($\text{SiO}_2=9.79$; $\text{CO}_2=6.93$; $\text{SO}_3=13.14$; $\text{CaO}=27.54$; $\text{H}_2\text{O}=42.60$). Hardness 3.5. Colour white. Sp. gr. 1.877.

Liversidge, Prof. New Zealand Minerals. *Trans. N. Z. Inst.* vol. x. p. 490.

Lösch, A. Ueber Kalkeisengranat (Demantoid) von Syssertzk am Ural. [A lime-iron Garnet, Demantoid, from Syssertzk, Urals.] *N. Jahrb.* pp. 785-791.

Describes the locality, the mode of occurrence, the mineralogical characteristics, and chemical composition of a new green garnet lately introduced into jewellery, and known in Russia as "chrysolite." Its relation to Nordenskjöld's original "Demantoid" is doubtful. Prof. vom Rath adds some footnotes. F. W. R.

Lovisato, Dr. D. Nuovi oggetti litici della Calabria. [Stone Implements.] *Atti R. Ac. Linc.* ser. 3, *Mem.* vol. iii. pp. 329-359, pl.

In remarks on the source of the material, analyses of nephrite are quoted from Claus (1866), Fellenberg (1870), Rath, and Damour.

——. [The Kinzingite of Calabria.] *Riv. Sci. Ind.* nos. 11-13.

Luedecke, Dr. Otto. Ueber Reinit: ein neues wolframsaures Eisenoxydul. [Reinite, a new tungstate of protoxide of Iron.] *N. Jahrb.* pp. 286-291, with woodcut; and *Zeitsch. ges. Naturw. Sachsen Thür.* lii.

Reinite was brought from Kimbosan in Japan by Dr. Rein, and was named by Prof. K. von Fritsch, who entrusted the examination of the mineral to Dr. Luedecke. It is a black-brown opaque mineral, 1879.

crystallizing in tetragonal pyramids of large size. Its sp. gr. = 6.640 ; $H=4$; and chemical composition = $FeWO_4$. F. W. R.

Luedecke, O. Ueber neue Erwerbungen des Mineralogisches Instituts und über neue Mineralien aus Japan und Thüringen. [Accessions to the Mineralogical Museum, and New Minerals from Japan and Thuringia.] 4to. *Halle*.

Macadam, W. I. On the Chemical Composition of a Nodule of Ozokerite found at Kinghorn-ness. *Rep. Brit. Assoc. for 1879*, pp. 309-312.

Found 5 feet down in hard trap rock ; it consisted of an outer coating of hard rock, an inner lining of calcite crystals, and a central nodule of bituminous matter. A similar nodule was found on the Island of Inchkeith, also in trap. Probably derived from a coal-bed by distillation at a low temperature. Analyses of nodules and adjacent rock given. W. T.

Malaise, C. Sur la découverte de l'arsénopyrite ou mispickel en Belgique. [Mispickel in Belgium.] *Ann. Soc. Géol. Belg.* t. vi. pp. lxviii, lxix.

Found in a quartz-vein in Silurian rocks. Characters described.

Malakhoff, V. M. Indicateur des lieux de provenance des minéraux connus jusqu'ici dans les monts Ourals. [Mineral Localities in the Urals.] *Bull. Soc. Oural. Sci. Nat.* t. v. liv. 1, pp. 1-10.

Continuation of the article noticed *post* SUPPLEMENT. The new species described are *Kyschtymo-parisite* analysed by **Karavaeff**, $3LaO \cdot CO_2 + Ce_2(Fe, O)_2 + HO$; *Palygorskite*, an aluminomagnesian silicate (analysis), *Pouschkinite*, a ferruginous epidote with 46 p. c. lithia ; and *Revdinskite*, an iron-nickel silicate, analysis by **R. Hermann**. W. H. D.

Mallard, Ernest. Traité de Cristallographie géométrique et physique. Tome I. 8vo and 4to atlas. *Paris*.

Mauro, Dr. Francesco. Analisi chimica dello spinello di Tiriolo in Calabria. [Analysis of the Tiriolo Spinel.] *Atti Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 65, 66 ; and *Gaz. chim. ital.* anno ix. fasc. 2. Gives the formula, $ZnMgFe, Al_2O_4 +$ a trace of antimonie oxide. Occurs in crystalline limestone.

Milne, Prof. John. Notes on Crystallography and Crystallo-Physics. Pp. viii, 70. 8vo. *London*.

— List of Japanese Minerals, with Notes on Species which are believed to be New. *Min. Mag.* vol. iii. no. 13, pp. 96-100.

The minerals believed to be new species, or new varieties of old species, are provisionally referred to Chlorophane, Hisingerite, Vermiculite, and Wollastonite. F. W. R.

— Experiments on the Elasticity of Crystals. *Min. Mag.* vol. iii. no. 15, pp. 178-185.

Noguès, A. F. Les Cristaux à l'Exposition universel de 1878. 8vo. *Paris*.

Nordenström, G. Mineralogiska notiser. 4. Fynd af antracit i en jernmalmsgrufva i Norberg. [Anthracite found in an iron-ore mine at Norberg, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 340, 341.

The piece of anthracite found in a block of the ore was about 10 centimetres long and broad and 5 thick. Analysis by **C. G. Dahlerus**.

— 5. Isomorfi emellan Magnetit och Brokig kopparmalm. [Isomorphism between Magnetite and Bornite.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 341–343.

At Norberg mine were found octahedral crystals of bornite with similar ones of magnetite. Some crystals consisted of bornite in the inner part and of magnetite in the outer. **E. E.**

Nordström, Th. Mineralanalytiska bidrag. I. Vanadinit från Bölet. [Vanadinite from Bölet, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 267, 268.

Colour wax-yellow; hardness 3. Analysis given, showing $\text{Cl}=2.34$ p. c., $\text{Pb}=6.67$, $\text{PbO}=71.99$, $\text{Fe}_2\text{O}_3=1.39$, $\text{V}_2\text{O}_5=17.61$, Pb_2O_3 scarcely traces. **E. E.**

— II. Selenhaltigt mineral från Falun. [A selenic mineral from Fahlun, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 268, 269.

Colour greyish white, metallic lustre; crystallized in prismatic lamellæ. Sp. gr. 6.4. Hardness 2. Melted in the candle-flame. Analysis has given $\text{Se}=4.77$ – 5.11 p. c.; $\text{Bi}=50.0$, $\text{Pb}=17.20$ p. c. The mineral was found by **Th. Witt**. **E. E.**

Pellegrini, Niccolo. Analisi di una Crisocolla del Chili. *Proc. Verb. Soc. Tosc. Sci. Nat.* vol. i. pp. lxxvii, lxxviii; and *Gaz. chim. Ital.* anno ix.

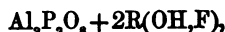
Gives analyses of exterior, interior, and intermediate band. The specimen is from Cerro Blanco, Chili.

Penfield, S. L. On the Chemical Composition of Triphylite. *Amer. Journ.* ser. 3, vol. xvii. pp. 226–229.

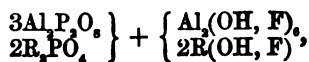
Gives analyses of triphylite from Massachusetts, Connecticut, and Bavaria, and quotes those of lithophilite, showing transitions between these minerals. **W. H. D.**

— On the Chemical Composition of Amblygonite. *Amer. Journ.* ser. 3, vol. xvii. pp. 295–301.

Gives analyses of Amblygonite from Penig (Saxony), Montebrias (France), Auburn, Hebron, and Paris (Maine), and Branchville (Conn.), deducing the formula:—



or



where R is lithium with some sodium. The hydroxyl is isomorphous with the fluorine. Montebbrasite of Descloiseaux and Hebronite of Von Kobell are synonyms. The mode of analysis is given. W. H. D.

Pisani, F. Sur la rétinite de Russie et la Wagnerite de Bamle en Norvège. *Bull. Soc. Min. France*, no. 2; and with different title, *Compt. Rend.* t. lxxxviii. no. 5, p. 242.

——. Sur divers sélénures de plomb et de cuivre de la Cordillère des Andes. [Selenides of lead and copper from the Andes.] *Compt. Rend.* t. lxxxviii. p. 391.

Portes, L. Manuel de Minéralogie spécialement destiné aux pharmaciens et élèves en pharmacie. [Mineralogy for Apothecaries.] 18mo. With figs. *Paris*.

Quenstedt, Prof. F. A. Handbuch der Mineralogie. Ed. 3. 1 Abth. Pp. 480. 8vo. *Tubingen*.

Rammelsberg, Prof. C. Ueber die Zusammensetzung des Kjerulfins. [Composition of Kjerulfin.] *Zeitsch. deutsch. geol. Ges.* Bd. xxxi. pp. 107–110.

——. Ueber die Zusammensetzung der Lithionglimmer. Zweite Abhandlung. [Lithia-Mica.] *Monatsb. k. preuss. Ak. Wiss.* pp. 248–252; *Journ. Chem. Soc.* vol. xxxv. pp. 19–21.

——. Ueber das Verhalten fluorhaltiger Mineralien in höher Temperatur insbesondere der Topase und Glimmer. [Behaviour of Fluorine Minerals, especially Topaz and Mica, at high Temperatures.] *Monatsb. k. preuss. Ak. Wiss.* pp. 253–263.

——. Ueber die chemische Zusammensetzung der Glimmer. [Mica.] *Monatsb. k. preuss. Ak. Wiss.* pp. 833–853.

Rath, Prof. G. vom. [Skapolite of Monzoni and Thenardite of L. Balchas.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, Sitz. pp. 381, 382.

——. Ueber das Gold. 8vo. *Berlin*.

Readwin, T. A. Notes on some Minerals of the Mawddach Valley. *Min. Mag.* vol. iii. no. 14, pp. 122–127.

Renard, A. Des caractères distinctifs de la dolomite et de calcite dans les roches calcaires et dolomitiques du Calcaire carbonifère de Belgique. *Bull. Ac. R. Belg.* t. xlvii. pp. 541–563, plate.

Renard, A., and Ch. de la Vallée Poussin. Note sur l'Ottrelite. *Ann. Soc. Géol. Belg.* t. vi. pp. 51–68, pl. ii. [Microscopic sections.]

A study of the optical and crystallographic characters of Ottrelite from the Belgian Ardennes. Regarded originally as hexagonal and afterwards as clinorhombic, it is now placed in the clinohedric system.

This conclusion is based on the cleavages and optical behaviour of the ottrelite of Otré and of Serpont. The little bright plates found in the metamorphic rocks of Paliseul, often regarded as ottrelite, must be separated from that species. Also describe a fibrous mineral from the Taunusian rocks, supposed by Dumont to be actinolite, but having great resemblances to ottrelite, from which, however, it differs in certain crystallographic and pyrognostic characters. F. W. R.

Renévier, Prof. E. Découverte d'un Silicate gélatineux naturel. [Natural gelatinous Silicate.] *Bull. Soc. Vaud. Sc. Nat.* xvi. pp. 15-20.

In cracks in the molasse lined with calcite was found, in a tunnel, a soft gelatinous substance, which in air dried to a pearly-looking substance, and contained minute rhombohedra. The soft paste has sp. gr. 2.1, with composition of Chabasite. It is supposed to be this mineral in an incipient state. E. B. T.

Richards, E. Silica. *Trans. Barrow Nat. Field Club*, vol. 3, pp. 51-60.

The various forms of silica and their modes of occurrence described. Analyses of Hawcoat stone and Walney sand given.

Rion, A. Minéralogie Merveilles de l'intérieur de la terre. Ed. 4. Pp. 64. *Paris*.

Röntgen, W. C. Ueber eine Methode zur Erzeugung von Isothermen auf Krystallen. [Method of producing Isotherms in Crystals.] *Zeitsch. Kryst. Min.* Bd. iii. Heft i. pp. 17-24, plate.

A method of determining the heat-conductivity in different directions of crystals is described; it is simpler and more accurate than that of De Sénarmont: its application to quartz, gypsum, and copper-vitriol is explained. T. W. D.

Rudler, F. W. Diamonds. *Science for All*, vol. ii.

Rumpf, Johann. Ueber den Krystallbau des Apophyllite. *Min. petr. Mitt.* ii. pp. 369-391, tab. 2, 3.

Explains the apparent tetragonal habit of Apophyllite by assuming it to belong to the monoclinic system, and to be built up of twins, the twin planes being (110), ($\bar{1}\bar{1}0$), (001). From this point of view the structure is discussed of crystals from Andeasberg, Poonah, Faroes, Montecchio-Maggiore, which are examples of different habit. E. B. T.

Sadebeck, A. [Hemihedrism of Manganite.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 206, 207.

Scacchi, A. Ricerche chimiche sulle incrostazioni gialle della Lava Vesuviana del 1631. Mem. I. [Yellow Incrustations on the Lava of Vesuvius of 1631.] 4to. *Naples*.

Scharizer, Rudolf. Notizen über einige österreichische Mineralvorkommnisse. *Verh. k.-k. geol. Reichs.* pp. 243-247.

Crystallography of columbite of the Riesengebirge; analyses of pyrope and serpentine of the Böhmerwald, and of garnet-pseudomorphs from Oetzthal, Tyrol. W. H. D.

Schmidt, Alexander. Die krystallographischen Elemente des Pseudobrookits. [Crystallography of Pseudobrookite.] *Földt. Közl. köt. viii.* p. 273; *Verh. k.-k. geol. Reichs.* p. 80.

$a : b : c = 0.498945 : 1 : 0.567604$.

——. Kristályos Tetraédrit Rozsnyóról. *Földtani Közlöny*, ix. p. 127; and (in German) Krystallisirter Tetraédrit von Rosenau. *Földtani Közlöny*, ix. pp. 164, 165.

Note on discovery of crystallized Tetrahedrite at Rosenau, where only a compact variety was previously known: it fills hollows in siderite, and is accompanied with chalcopyrite. E. B. T.

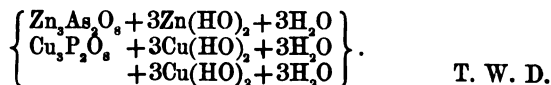
Schrauf, A. [On Eggonit.] *Zeitsch. Kryst. Min.* Bd. iii. Heft iv. pp. 352-356, fig.

Eggonite is a cadmiferous silicate crystallizing in a simple form similar to one of Baryte. It may be regarded as the third generation in the series of natural zinc-cadmium combinations. T. W. D.

——. Anhang: Ueber die Form des Signals für Krystallmessungen. [Sequel; Form of Signal for Crystal-measurement.] *Zeitsch. Kryst. Min.* Bd. iii. Heft iv. pp. 356-358; 1 fig.

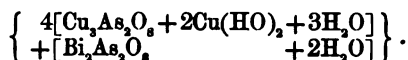
——. Ueber Phosphorkupfererze. [Natural Copper Phosphates.] *Zeitsch. Kryst. Min.* Bd. iv. Heft i. pp. 1-33, pl. of 10 figs.

Lunnite, Libethenite, Thrombolite, and Veszelyite are discussed. Characteristic differences exist between the amorphous and crystallized varieties of Lunnite: Phosphorochalcite, Ehlite, Dihydrate represent respectively the molecules $\text{Cu}_3\text{P}_2\text{H}_6\text{O}_{14}$, $\text{Cu}_3\text{P}_2\text{H}_6\text{O}_{13}$, $\text{Cu}_3\text{P}_2\text{H}_4\text{H}_{11}$, and these, in binary or ternary combination and in varying proportion, build up the amorphous masses of pseudomalachite. The constitution ($10\text{CuO} + 3\text{Sb}_2\text{O}_3 + 19\text{H}_2\text{O}$) of Thrombolite shows this mineral to be an important paragenetic member of Rammelsberg's group of Antimonates and Antimonites. Veszelyite from Morawicza near Bagsan, Banat, is triclinic: relationship to Libethenite and Adamine is shown by the formula:—



——. Ueber Arsenate von Joachimsthal. [Arsenates from Joachimsthal.] *Zeitsch. Kryst. Min.* Bd. iv. Heft iii. pp. 277-285, pl. of 9 figs.

1. *Mixite*, a new hydrous arseniate of copper and bismuth, is probably monosymmetric or asymmetric, and has the formula:—



2. *Wapplerite*. 3. *Pharmakolite*. The crystallography of these two minerals is discussed. T. W. D.

Schulz, J. C. F. Das Wissenswürdigste aus dem Mineralogie. [Important Points of Mineralogy.] Ed. 4. *Breslau*.

Schuster, M. Ueber die optische Orientirung des Plagioklase. [Optical Orientation of Plagioclase.] 8vo. *Wien*.

Seligmann, G. [Sulphur-crystals, Betzdorf; Pseudomorphs after Olivine.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, *Corr.-Blatt*, p. 118.

Sella, —. Delle forme cristalline 'dell' *Anglesite* di Sardegna. [Sardinian *Anglesite*.] *Atti R. Ac. Linc.* ser. 3, *Trans.* vol. iii. pp. 150–158; and *Gaz. chim. Ital.* anno ix.

Crystallographic measurements.

S[illiman], B. *Jarosite* (with Gold). *Amer. Journ.* ser. 3, vol. xviii. p. 73.

Occurs in a quartz-vein in gneiss at the Vulture Mine, Arizona. The pyrites is decomposed and removed to 300 feet deep by atmospheric action. W. H. D.

Singer, S. Beiträge zur Kenntniss der am Bauersberge bei Bischofsheim von d. Rhön vorkommen. Sulfate. [Sulphates from Bauersberg.] 8vo. *Würzburg*.

Sjögren, Hj. Kristallografiska studier. I. Pyroxen från Nordmarken. [Crystallographic Studies. I. Pyroxene from Nordmark, Sweden.] *Geol. Fören. Stockholm Förh.* Bd. iv. pp. 364–381, plate.

Gives a review of the morphology of the Nordmarkian pyroxenes. About 40 crystals were examined. Gives list of the 17 partial-forms found, 4 of which are new. Analysis by the writer is compared with the older ones of Funck, Rose, and Doelter. E. E.

Sohncke, Leonhard. Ueber das Verwitterungsellipsoid rhomboedrischer Krystalle. [On the Ellipsoid of Weathering in rhombohedral Crystals.] *Zeitsch. Kryst. Min.* Bd. iv. Heft iii. pp. 225–231.

The general conclusion from observations on $\text{SrS}_2\text{O}_6 + 4\text{aq}$, $\text{CaS}_2\text{O}_6 + 4\text{aq}$, $\text{PbS}_2\text{O}_6 + 4\text{aq}$, is that the surfaces of weathering in these rhombohedral salts are not spherical, but approximately ellipsoidal; and that the ellipsoid of the first two is flattened with an axis ratio 10 : 12, while that of the lead salt is elongated with the axis ratio 11 : 10.

T. W. D.

Sohncke, Leonhard. Entwicklung einer Theorie der Krystallstruktur. Pp. viii, 248; 5 plates. 8vo. *Leipzig*.

Sorby, Dr. H. C. On a new method of Studying the Optical Characters of Minerals. *Proc. Geol. Soc. W. Riding Yorksh.* vol. vii. pt. 1, pp. 5-15.

The advantages of viewing a circular hole or rectangular grating with a microscope through a parallel plate of any crystalline mineral are described.

T. V. H.

— On the Cause of the Production of different secondary forms of Crystals. *Min. Mag.* vol. iii. no. 14, pp. 111-113.

Stillman, J. M. Bernardinite: a new Mineral Resin from San Bernardino County, Cal. *Amer. Journ.* ser. 3, vol. xviii. pp. 57-60, and in German, *Ber. deutsch. chem. Ges.* Jg. xii.

Describes this new resin, giving analysis [corresponding to $C_{18}H_{28}O_4$].

Streeter, E. W. Precious Stones and Gems. Ed. 2. 8vo. *London*.

Streng, A. Feuerblende und Rittingerit. [Fireblende and Rittingerite.] *N. Jahrb.* pp. 547-554, woodcut.

A mineral from Chañarcillo was described as Fireblende. Doubt has been cast on this determination, and its characters are now compared with those of Rittingerite.

F. W. R.

Szabó, Dr. Josef. Urvölgit, Kupferkalk Hydrosulphat, ein neues Mineral von Herrengrund. *Lit. Ber. Ungarn*, Bd. iii. pp. 510-521, pl. Urvölgyit, egyuj Réz-ásvány. [Urvölgyite, a new Copper Mineral.] *Érték. Termesz. Kör.* köt. ix. sz. ix. pp. 16, plate; and *Min. petr. Mitt.* ii. pp. 311-324.

Urvölgyite or Herrengrundite belongs to the rhombic system; optic axes lie in brachydiagonal, axial figure symmetrical. Cleavage basal perfect, brachydiagonal less so. Dichroic. Hardness 2.5-3. Colour dark emerald-green to greenish aquamarine. Composition $(Cu_4H_2SO_{10} + aq) + (CaSO_4 + 2aq)$. Allied to Langite, but differs by containing calcic sulphate. When treated with HCl gypsum is left as remnant, which points to its being a mixed crystallization of gypsum and Langite substance. Identifies it with Brezina's Herrengrundite, of a few days' priority. Analysis by Dr. S. Schenck.

E. B. T. and W. H. D.

Tenne, C. A. Ueber Epistilbit. [Epistilbite.] *N. Jahrb.* pp. 840, 841.

This species is monoclinic. Its optical properties are noted.

Thoss, M. von Seherr. Ueber künstlichen Dichroismus. [Artificial Dichroism.] *Ann. Phys. Chim.* n. F. Bd. vi. pp. 270-287.

Tribolet, M. de. Tableaux minéralogiques (formules chimiques systèmes cristall.; dureté, poids spécif.). 8vo. *Neuchatel*.

Tribolet, M. de. Note sur l'Origine des variétés Filiforme et Capillaires de l'Argent natif. [Origin of Filiform Varieties of Native Silver.] *Bull. Soc. Sci. Nat. Neuchâtel*, t. xi. pp. 380-383.

The dendritic forms are probably due to alteration of ores by heat. They are closely reproduced in the furnace.

Tschermak, Dr. G. von. Die Glimmergruppe (ii. Theil). [The Mica-group. Part ii.] *Zeitschr. Kryst. Min.* Bd. iii. Heft ii. pp. 122-167; and *Sitz. k. Ak. Wiss.* Bd. lxxviii. Abth. i. pp. 5-60.

The analyses of the various micas are described, and the results of them discussed. These minerals are arranged in the following series in accordance with their chemical and physical properties:—1. *Biotite Series* (magnesian mica in part), monoclinic; containing combinations of the molecules $\text{Si}_6\text{Al}_6\text{H}_4\text{K}_2\text{O}_{24}$ (=K) and $\text{Si}_6\text{Mg}_{12}\text{O}_{24}$ (=M). To this belong:—*a.* Anomite, composed of K and M in the ratios 1:1 or 2:1. *b.* Merroxene, composed of $\text{Si}_6\text{Al}_6\text{K}_3\text{H}_4\text{O}_{24}$ and $\text{Si}_6\text{Mg}_{12}\text{O}_{24}$ in the ratios 1:1 or 2:1 (Rubellan, Voigtite, Eukamptite, Aspidolite, Hallite seem to be decomposed merroxene). *c.* Lepidomelane, composed of $\text{Si}_6\text{Al}_6\text{K}_2\text{H}_4\text{O}_{24}$ and $\text{Si}_6\text{Mg}_{12}\text{O}_{24}$.

2. *Phlogopite Series*, monoclinic, consisting of combinations of the molecule $\text{Si}_6\text{Al}_6\text{H}_4\text{K}_2\text{O}_{24}$ (=K), $\text{Si}_{10}\text{H}_8\text{O}_{24}$ (=S), and $\text{Si}_6\text{Mg}_{12}\text{O}_{24}$ (=M). To this belong:—*a.* Phlogopite, composed of $\text{Si}_6\text{Al}_6\text{K}_3\text{O}_{24}$; $\text{Si}_{10}\text{H}_8\text{O}_{24}$; $\text{Si}_6\text{Mg}_{12}\text{O}_{24}$ in the proportion 3:1:4 (cir.). Vermiculite and Jefferisite seem to be decomposed phlogopite. *b.* Zinnwaldite, composed of $\text{Si}_6\text{Al}_6\text{K}_3\text{O}_{24}$; $\text{Si}_6\text{Fe}_6\text{O}_{24}$; $\text{Si}_{10}\text{Fl}_8\text{O}_{24}$ in the proportion 10:2:3.

3. *Muscovite Series*, monoclinic, consisting of the molecules $\text{Si}_6\text{Al}_6\text{H}_4\text{K}_2\text{O}_{24}$ (=K) and $\text{Si}_{10}\text{O}_8\text{Fl}_8$ (=S). To this belong:—*a.* Lepidolite composed of $3\text{Si}_6\text{Al}_6\text{K}_3\text{O}_{24} + \text{Si}_{10}\text{O}_8\text{Fl}_8$. *b.* Muscovite, composed of $\text{Si}_6\text{Al}_6\text{K}_2\text{O}_{24}$ and $\text{Si}_{10}\text{H}_8\text{O}_{24}$ in the ratio 3:1; sometimes the first combination almost alone. Didymite, Amphilogite, and Adamsite are varieties of muscovite. Margarodite and Euphyllite are mixtures of muscovite with the following micas. Oellacherite contains barium. Damourite is compact muscovite. Liebenerite and pinite belong here. *c.* Paragonite, composed of $\text{Si}_6\text{Al}_6\text{Na}_2\text{H}_4\text{O}_{24}$. Cossaite a compact paragonite often confounded with damourite.

4. *Margarite Series*, monoclinic, consisting of $\text{Si}_4\text{Al}_3\text{Ca}_2\text{H}_4\text{O}_{24}$, with a small admixture of sodium silicate; to it belongs:—*a.* Dudleyite, according to Dana a changed Margarite. *b.* Margarite seems to belong rather to the Clintonite group than to the micas. The physical characters of these four series are described in Part i. of this communication, Bd. ii. Heft i.

T. W. D.

— Zur Theorie der Zwillingkrystalle. [Theory of Twin-crystals.] *Min. petr. Mitt.* ii. pp. 499-522.

Classifies hemitrope twins into those with (1) Twin axis normal to a possible crystal plane, (2) parallel to a possible edge (zone), (3) twin axis lying in a possible plane normal to a possible edge (zone).

E. B. T.

Tschermak, Dr. G. von, and L. Sipöcz. Die Clintonitgruppe. [The Clintonite group.] *Zeitschr. Kryst. Min.* Bd. iii. Hefte v. & vi. pp. 496-515, plate; and *Sitz. k. Ak. Wiss.* Bd. lxxviii. Abth. i. pp. 555-579, plate.

Margarite is monoclinic, with composition $\text{Si}_4\text{Al}_4\text{H}_4\text{O}_{24} + \text{Al}_2\text{Ca}_2\text{O}_{12}$. The clintonite series is isomorphous with margarite, with composition $\text{Si}_4\text{Mg}_2\text{Ca}_2\text{H}_4\text{O}_{24}$ and $\text{Al}_2\text{MgCaH}_4\text{O}_{12}$, and comprises Xanthophyllite, Brandisite, Seybertite. The Chloritoid series is monoclinic, with composition $\text{Si}_2\text{Fe}_2\text{H}_2\text{O}_7 + \text{Al}_2\text{H}_2\text{O}_7$. Ottrelite and Sismondine are varieties of Chloritoid. Cronstedite seems to belong to the Chlorite group. Sapphirin is monoclinic, with a composition that exhibits no great likeness to the preceding group. The physical characteristics of these minerals are stated. Astrophyllite, which exhibits a certain likeness to the Clintonite group, is a decomposition product of the pyroxene group.

T. W. D.

Ulrich, Prof. G. [Guano-Minerals (Hannayite and Newberyite) from Skipton Caves, New Zealand.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, *Sitz.* pp. 5-10.

Urba, or Vrba, K. Berichtigung der Analyse des Frieseit. [Correction of Analyses of Frieseite.] *Zeitsch. Kryst. Min.* Bd. iii. Heft ii. pp. 186-190, woodcut.

Prof. Preis gives $\left\{ \begin{array}{c} \text{Ag}_2\text{S} \\ \text{FeS} \\ 2\text{Fe}_2\text{S}_3 \end{array} \right\}$ as the formula of Frieseite;

Prof. Janovsky gives $\left\{ \begin{array}{c} 2\text{Ag}_2\text{S} \\ \text{FeS} \\ 4\text{FeS}_2 \end{array} \right\}$ for Sternbergite.

T. W. D.

Urba, K., and K. Preis. Ueber einige Mineralien und dem Diabas von Kuchelbad. [Minerals from Diabase of Kuchelbad.] *Sitz. k. böhm. Ges. Wiss.*

Vion, R. Nécessité d'une nomenclature systématique en minéralogie. [Need of Systematic Mineralogical Nomenclature.] *Bull. Soc. Linn. N. France.*

Wadsworth, Dr. M. E. Danalite from the Iron Mine, Bartlett, New Hampshire. *Proc. Boston Soc. Nat. Hist.* vol. xx. pp. 284-286.

Describes this rare mineral from a new locality, giving the pyrognostic characters more fully than they have been hitherto. Notes a rock, new to science, composed of plagioclase and rhodonite, from the same locality.

M. E. W.

——. Pierolite from a Serpentine Quarry in Florida, Mass. *Proc. Boston Soc. Nat. Hist.* vol. xx. pp. 286, 287.

Shows that a supposed picrosmine was picrolite, and suggests that most, if not all, of the supposed picrosmine is serpentine. Points out that much so-called asbestos is serpentine. M. E. W.

Ward, Rev. J. C. On some Gold Occurrences. *Min. Mag.* vol. iii. no. 13, pp. 85–88, pl. i.

Specimens of moss-form and of tree-form gold in quartz, from New Zealand.

Websky, W. [Aphrosiderite from Striegau, Silesia.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 211, 212.

——. [Iron-pyrites from Armenia.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 222–224.

——. Ueber die Lichtreflexe schmaler Krystallflächen. [Reflexion of Light at small Crystal-faces.] *Zeitsch. Kryst. Min.* Bd. iii. Heft iii. pp. 241–258; pl. of 11 figs.

——. Ueber Krystall-Berechnung im triklinischen System. 8vo. Berlin.

Weisbach, [Prof.] A. Apophyllit von Himmelsfürst. [Apophyllite from the Himmelsfürst Mine.] *N. Jahrb.* p. 563.

Zeolites had not previously been known in the lodes of the Freiberg district. This apophyllite, which was found in 1878, occurs in clear colourless crystals of unusual habit: tabular from predominance of OP, but showing also the pyramid P and prism $\infty P\infty$, with many small faces, including a ditetragonal pyramid, probably 2P2. Analysis by H. Schulze given. F. W. R.

Winkler, Benjamin von. Urvölgyit, egy új rézasvány Urvölgyröl. *Földtani Közlemény*, ix. pp. 121–124; or, in German, Urvölgyit, ein neues Kupfermineral von Herrengrund, pp. 156–159.

This mineral from Herrengrund, on analysis, is represented by $(Cu_4H_2SO_{10} + aq) + (CaSO_4 + 2aq)$, a copper-sulphate of new formula. It generally forms globular groups, the separate laminæ hexagonal. Rhombic system. Cleavage basal. Sp. grav. 3.132. Colour bluish green. Lustre vitreous to pearly on cleavage-faces. E. B. T.

Wleügel, S. [Indium in Minerals.] *Nyt Mag. Nat.*

Wöhler, F. Bemerkungen über das grönländische Gediegen-Eisen. [Greenland Native Iron.] *N. Jahrb.* pp. 832–834.

Gives quantitative analysis of the whole mineral. It consists probably of a compact mixture of metallic iron and protoxide of iron, corresponding to metallic iron 36.35; protoxide 49.9; iron-sulphide 7.75; iron-phosphide 0.69; nickel, containing cobalt, 1.66; carbon 3.69; with chromium, copper, &c. F. W. R.

Wulff, Ludwig. Ueber die Krystallformen der isomorphen Nitrate der Bleigruppe. [Crystallography of the Isomorphous Nitrates of the Lead-group.] *Zeitschr. Kryst. Min.* Bd. iv. Heft ii. pp. 122–161; 2 pls., 12 woodcuts.

Young, John. A new Scottish Mineral (*Bowlingite*). *Trans. Geol. Soc. Glasgow*, vol. vi. pt. 1, pp. 63–68.

Belongs to the Margarophyllite section of Dana; occurs as crusts lining fissures in a dolerite quarry to the E. of Bowling, Kilpatrick Hills. A hydrous silicate, resulting from the decomposition of Olivine-basalt. Gives the results of four analyses. J. G. G.

Zepharovich, V. von. Miemit von Zepce in Bosnien und von Rakovac in Slavonien. *Verh. k.-k. geol. Reichs.* pp. 180–182.

—. Enargit von Matzenköpfl (Madersbacher Köpfl) bei Brixlegg. *Ibid.* pp. 182, 183.

—. Halotrichit und Melanterit von Idria. *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. i. pp. 183–192.

The minerals iron-magnesia-alum and iron-vitriol occurred as botryoidal masses in old workings in Idria: from the analysis it appears that the former consists of 78·4 p. c. Halotrichite and 21·6 p. c. Epsomite. The measured angles are given in tables: the influence of magnesia in the compound was illustrated by preparing salts of iron and magnesium sulphates in various proportions, and comparing the angles of their crystals. E. B. T.

—. Krystallformen des Jodsilber. [Crystallography of Iodide of Silver.] *Zeitschr. Kryst. Min.* Bd. iv. Heft ii. pp. 119–121; 3 woodcuts.

—. Ueber Dolomit-Pisolith und die sogenannte “doppel-körnige” Structur. [Dolomitic Pisolite and the so-called double-grained Structure.] 8vo. *Prague*.

SUPPLEMENT FOR 1874–1878.

Bechi, Prof. E. Composizione del sale proveniente da parecchie saline italiane. [Composition of Salt from Italian Brine.] *Atti R. Ac. Linc.* ser. 2, vol. iii. pt. 2, p. 45. [1876.]

Blake, James. On Roscoelite, or Vanadium Mica. *Proc. Calif. Ac. Sci.* vol. vi. p. 150. [1876.]

It is a potash mica, and contains 20 p. c. of vanadium. It occurs, associated with quartz, in a vein in porphyritic rock, at Granite Creek, Eldorado Co. W. R. J.

Capellini, G. De l'Ambre Italienne et principalement de l'Ambre rougeâtre du Bolognais. [Italian Amber, and chiefly the Red Amber of Bologna.] *Compt. Rend. Congrès internat. anthrop. archéol. préhist.* [1876.]

Delafontaine, —. Sur la présence de l'ytterbine dans la sipylite d'Amherst (Verginie). [Ytterbine in the Sipylite of Virginia.] *Compt. Rend.* t. lxxxvii. p. 933. [1878.]

Freda, G. Sulla presenza del moliddeno nella sodalite vesuviana. [Molybdenite in Vesuvian Sodalite.] *Rend. R. Ac. Sci. Napoli*, an. xvii. [1878.]

Helm, Otto. Ueber die mikroskopische Beschaffenheit und Schwefelgehalt des Bernsteins. [Microscopic Characters of, and amount of Sulphur in, Amber.] *Halle*, 1878.

Henry, —. Sur les gîtes de cuivre gris. [Deposits of Grey Copper.] *Compt. Rend. Soc. Indust. Min. St. Etienne*, July 1877, p. 12.

Klocke, Dr. F. Krystallographische Mittheilungen aus dem mineralogischen Museum der Universität Freiburg in Baden. [Crystallographic Notes.] *Ber. Verh. nat. Ges. Freiburg*, Bd. vi. Heft 4, pp. 1–23. [1876.]

Lasaulx, Prof. A. von. [Melanophlogite and Aerinite; Oberstein Quartz; Pilinite, n. sp.; Chabasite.] *54 Jahres-Ber. Schles. Ges. Kultur*, pp. 26–29. [1877.]

——. [Iodobromite n. sp.; Saccharite; Mica.] *55 Jahres-Ber. Schles. Ges. Kultur*, pp. 49–52. [1878.]
Saccharite is an aggregate of felspar, quartz, &c.

Louis, H. Notes on Nova Scotian Mineralogy. *Proc. Nov. Scot. Inst.* vol. iv. pp. 423–428. [1878.]

On Copper ore from New Annan and from an unknown locality, with analyses. On a fibrous mineral encrusting some of the Iron ores in Martin's Brook Mines, at Londonderry, N.S., and on Native Sulphur.

W. R. J.

Luca, S. de. Sulla natura del gas raccolto da una fumarola nel suolo del prosciugato Lago Fucino. [Nature of the Gas from a Fumerole, Lake Fucino.] *Riv. Sci. Ind. and Rend. R. Ac. Sci. Napoli*. [1874.]

Macpherson, J. Sobre ciertas anomalías que las Micas de algunos granitos presentan en la luz polarizada. [Anomalous Characters of Micas of certain Granites in Polarized Light.] *Ann. Soc. Españ. Hist. Nat.* t. vi. p. 11. [1877.]

Nordenskiöld, Prof. A. E. Om kristallvattnets inflytande på kristallformen. [Influence of the Water of Crystallization on the Forms of Crystals.] *Öfv. K. Vet. Akad. Handl.* bdt. xxx. no. 7, pp. 3. [1874.]

— . Kristallografiska bidrag. [Crystallographic Notes.] *Bihang K. Svenska Vet.-Akad. Handl.* bdt. ii. no. 2. [1874.]

Palmieri, L. Il Tallio nelle presenti sublimazioni vesuviane. [Thallium in Vesuvian Sublimates.] *Rend. R. Ac. Sci. Napoli.* [1877.]

Raimondi, A. Minéraux de Pérou. Catalogue raisonné d'une Collection des principaux types minéraux de la République, comprenant aussi des échantillons de Guano et des débris fossilisés des oiseaux qui l'ont produit. Traduit de l'espagnol par J. B. H. Martinet. Pp. 336. 8vo. Paris, 1878.

Catalogue of 652 specimens of minerals, &c. at the Paris Exhibition; some are fully described, with analyses.

Reynolds, Prof. J. E. On Glucinum; its Atomic Weight and Specific Heat. *Proc. R. Irish Ac.* ser. 2, vol. ii. no. 7. pp. 731-735.

This rare metal occurs in beryl, and is found in the granites of Donegal, and Mourne Mountains, Co. Down. The author's experiments are described. J. G. G.

— . Reports from the Chemical Laboratory of Trinity College, Dublin.—No. 2. On the Composition of Lievrite, as determined by Mr. Early's method. *Proc. R. Irish Ac.* ser. 2. vol. iii. no. 1, pp. 52-54.

The specimen was obtained from Elba; analysis is given.

Roemer, Dr. F. Ueber mineralogisch interessante Objecte der Wiener Weltanstellung. 51 *Jahres-Ber. Schles. Ges. Kultur*, pp. 39, 40. [1874.]

— . [Native Copper, Hohenfriedeberg.] 52 *Jahres-Ber. Schles. Ges. Kultur*, pp. 27, 28. [1875.]

— . Ueber einige neue schlesische Mineralvorkommen. [On the occurrence of some new Minerals.] *Jahres-Ber. Schles. Ges. Kultur*, pp. 35, 36. [1876.]

Mentions Andalusite and Prehnite.

Roscoe, Sir H. E. On two new Vanadium Minerals. *Proc. R. Soc.* vol. xxv. p. 109. [1876.]

Schottky, Dr. A. Ueber die Kupfererze des Minen-Districtes von Aroa in Venezuela. [The Copper Ores of the Mining District of Aroa, Venezuela.] 55 *Jahres-Ber. Schles. Ges. Kultur*, pp. 45, 46. [1878.]

Seligmann, G. Ueber russische Topase und über Enstatit von Snarum. [Russian Topaz and Enstatite from Snarum.] *Leipzig*, 1878.

Semmola, E. Sulle emanazioni aeriformi delle fumarole collocate a diversa distanza dall' attuale bocca d' eruzione del Vesuvio. [Gaseous Emanations from Fumeroles collected at various distances from the centre of eruption of Vesuvius.] *Rend. R. Ac. Sci. Napoli*, 1878.

Smith, C. On Red Hæmatite. *Coal and Iron Trades Gazette*, 1877, p. 172.

Smyth, W. W. Lectures on Mineralogy. *Coal and Iron Trades Gazette*, 1877, pp. 202, 221, 244, 321.

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Argall, P. H. Analysis of Kilmacooite: p. 3.

Baills, —. Bilbao Iron-ore: p. 41.

Bechi, Prof. E. Prehnite, &c.: p. 235.

Bourson, E. Bilbao Iron-ore: p. 48.

Chapman, Prof. E. J. Analyses of Iron-ores: p. 251.

Church, Prof. A. H. Italian Cassiterite: p. 52.

Cook, Prof. G. H. Analyses of American Iron-ores: p. 136. *Minerals of Ottawa*: under Selwyn, p. 147.

Genth, Dr. F. A. Corundum: under Kerr, p. 165.

Gilpin, E. Iron-ores, Nova Scotia: p. 160.

Harrington, Dr. Apatite, &c., Canada: p. 139.

- Hector, Dr.** Analyses of Minerals: p. 203.
- Heinrich, Dr. J.** Analyses of Virginian Coals: p. 141.
- Helmhacker, R.** Cornish Tin-ore: p. 17.
- Hilger, A.** Analyses: p. 241.
- Hoffmann, C.** Apatite: under **Selwyn**, p. 147.
- Hull, E.** Crystals of Salt in Chert: p. 18.
- Kendall, J. D.** Cumberland Hæmatite: p. 21.
- Koch, Dr. A.** Analyses: p. 243.
- Lecornu, L.** Lead-ore, &c., Derbyshire: p. 23.
- Leszko, B.** Analyses of Phosphorites: under **Biencasz**, p. 45.
- Louis, H.** Nova Scotian Copper-ore: p. 166.
- McCalley, H.** Analyses of Limonite, &c.: under **Smith**, p. 147.
- McCreath, A. S.** Analyses: p. 244.
- McDakin, Capt.** Heavy Spar, Sheppey: p. 24.
- Mallet, F. R.** Pyrolusite, &c.: p. 189.
- Newberry, S. B.** Analysis of Ozocerite: p. 144.
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Gives also analysis of mud.

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- Poleck, Dr.** Ueber einige in Mineralwässern seltener vorkommende Bestandtheile. 53 *Jahres-Ber. Schles. Ges. Kultur*, pp. 24, 25. [1876.]
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——. [Composition of the Birresborn and Gerolstein Mineral Springs at Pelm, in the Eifel.] *Ber. deutsch. chem. Ges.* Bd. xi. p. 877. [1878.]

Weidel, H., and **G. Goldschmiedt**. [The Mineral Spring of O Tura in Hungary.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxiv. pp. 391–393. [1877.]

Willm, —. Analyse des eaux minérales sulfureuses d'Aix en Savoie et de Marlioz. [Analysis of the Sulphur Waters of Aix (Savoy) and of Marlioz.] *Compt. Rend.* t. lxxxvi. pp. 543–546. [1878.]

——. Sur l'eau minérale de Challes en Savoie. *Compt. Rend.* t. lxxxvi. pp. 613–616. [1878.]

Wroblewsky, E. Mineral Waters of the Couban, Caucasus. *Bull. Soc. Chim. Paris*, sér. 2, t. xxx. p. 436. [1878.]

See also :—

Jali, Dr. M. Mud from Waters ; p. 251.

Peale, Dr. A. C. Analyses : under **Hayden**, p. 140.

Pond, J. A. Salt-spring, N. Zealand : p. 208.

Skey, Prof. W. Analyses : under **Martin**, p. 207.

Stephens, T. Hot-Spring, Southport (Tasmania) : p. 208.

Voisin, H. Vichy Waters : p. 118.

PALÆONTOLOGY.

1. VERTEBRATA.

Adams, Prof. A. L. On Remains of Mastodon and other Vertebrata of the Miocene Beds of the Maltese Islands. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 517-531, pl. xxv.

Gives an account of the beds (Upper Limestone, Sand, Marl, Calcareous Sandstone, and Lower Limestone, all conformable). Describes remains of *Mastodon*, *Phoca*, *Squalodon*, *Delphinus*, and *Halitherium*, besides Reptiles and Fish. W. W.

——. Monograph on the British Fossil Elephants. Part 2. *Palæontograph. Soc.* pp. 69-146, pls. vi.-xv., woodcuts.

Gives an account of the British and foreign distribution of *Elephas primigenius*. Treats of the dentition in detail, and describes the skull, mandible, and shoulder-girdle. E. T. N.

Bassani, Dr. Fr. Vorläufige Mittheilungen über die Fischfauna der Insel Lesina. [Preliminary Note on Fossil Fish of Lesina.] *Verh. k.-k. geol. Reichs.* pp. 162-170; Errata, p. 204.

Describes from these Cretaceous beds the new species *Aphanerpygus* (n. gen.) *elegans*, *Thrissops exiguus*, *Leptolepis neocomiensis*, *L. Neumayri*, *Prochanos* (n. gen.) *rectrifrons*, *Elopopsis Haueri*, *Hemielopopsis* (n. gen.) *Suessi* and *H. gracilis*. 11 others are noticed. W. H. D.

——. Studi sui pesci fossili cretacei dell' isola di Lesina. [Cretaceous Fish of Lesina.] *Bull. Soc. Ven.-Trent. Sci. Nat.* vol. i. no. i. (See the above.)

——. Note paleontologiche. I. Contribuzione alla fauna Ittiologia del Carso presso Comen in Istria. II. Resti di Pesci Cretacei e Terziari. *Bull. Soc. Ven.-Trent. Sci. Nat.* no. 2. (See EUROPE, p. 43.)

Berthoud, Prof. E. L. Prof. Marsh on the Fossil Polydactyle Ancestors of the Horse; and Recent Examples. *Kansas Rev. Sci.* vol. iii. pp. 152-155.

Bourguignat, J. B. Histoire des felidæ fossiles constatés en France dans les dépôts de la période quaternaire. [French Quaternary Felidæ.] Pp. 54, plate. 4to. Paris.

Brandt, J. F. Nachträgliche Bemerkungen zur Monographie der tichorhinen Nashörner. [Supplement to Monograph of the Tichorhine Rhinoceroses.] *Bull. Ac. Imp. Sci. St. Pétersb.* t. xxv. pp. 260–265.

Particulars of osteology of vertebræ, scapula, &c.

— Tentamen Synopsos Rhinocerotidum viventium et fossilium. [Synopsis of Rhinocerotidæ.] *Mém. Ac. Imp. Sci. St. Pétersb.* sér. vii. t. xxvi. no. 5, pp. ii, 66, plate.

Cranial and dental characters of 32 species.

— Mittheilungen über die Gattung *Elasmotherium*, besonders den Schaedelbau derselben. [Cranial Characters of *Elasmotherium*.] *Mém. Ac. Imp. Sci. St. Pétersb.* sér. vii. t. xxvi. no. 6, pp. i, 36, 6 pls. [Entered by mistake in the GEOLOGICAL RECORD for 1878, p. 291.]

Burmeister, H. Neue Beobachtungen am *Doedicurus giganteus*. 4to. *Berlin*.

Capellini, Prof. G. Balenottera fossile delle Colombaie presso Volterra. [Fossil Balænoptera from Volterra, Tuscany.] *Atti R. Ac. Linc.* ser. 3, *Mem.* vol. iii. pp. 205–210.

Figures and describes the jaw, the upper 13 vertebræ, ribs, and a fore limb of a *Plesiocetus*.

Chantre, E. Les mammifères fossiles du bassin du Rhône. *Lyon Sci. Ind.* no. 1.

Cope, Prof. E. D. Observations on the Faunæ of the Miocene Tertiaries of Oregon. *Bull. U. S. Geol. Surv. Terr.* vol. v. pp. 55–70.

Describes the new species:—*Euhydrocyon* (n. gen.) *stenocephalus*, *E. basilatus*, *Pœbrotherium Sternbergii*, and *Boöchærus* (n. gen.) *humerosus*, from White River Beds; *Lutricetus*? *lycopotamus* and *Protolabis transmontanus* from Loup Fork Beds. W. H. D.

— On the Genera of Felidæ and Canidæ. *Proc. Ac. Nat. Sci. Philad.* pp. 168–194.

Reviews the recent and fossil genera. Describes *Dinictis cyclops*, *Temnocyon coryphæus*, and *Icticyon crassivultus*, new species from the Truckee Beds of Oregon, and two new genera of recent dogs. Calls attention to the decreasing dentition of Man as indicating future generic distinction into *Homo*, *Metanthropos*, and *Epanthropos*.

W. H. D.

— On the Characters of the Theromorphous Reptilia and Stegocephalous Batrachia. *Ann. N. York Acad. Sci.* sess. 1878.

Cope, Prof. E. D. The Origin of the Specialized Teeth of the Carnivora. *Amer. Nat.* vol. xiii. pp. 171-173.

That tooth which is in front of the masseter muscle is specialized into a sectorial, and the position of this muscle depends on the use of the canines for holding or tearing. In modern Carnivora it is more forward than in *Hyænodon*, *Creodonta*, &c. W. H. D.

——. *Merycopater* and *Holophoneus*. *Amer. Nat.* vol. xiii. p. 197.

Transfers his *Hyopotamus guyotianus* to a new genus *Merycopater*, and *Machærodus brachyops* to *Holophoneus*. See GEOLOGICAL RECORD for 1878, p. 293.

——. On the Extinct American Rhinoceroses and their Allies. *Amer. Nat.* vol. xiii. pp. 771 a-j (10 pp.).

Traces the evolution of the 8 genera. ["Adapted" from *Bull. U.S. Geol. Surv. Terr.* (see above).]

——. The Cave Bear of California. *Amer. Nat.* vol. xiii. p. 791.

Describes the skull of *Arctotherium simum*, n. sp., from a cave in Shasta Co., Cal.

——. [Summary of Discoveries in the Rocky Mountains.] *Amer. Nat.* vol. xiii. pp. 798 a, b.

Describes *Archælurus debilis* (n. gen. and sp., Felidæ) and *Holophoneus platycopis*, n. sp., from skulls from L. Miocene, John Day River, Oregon. [In 1880 the latter species is placed in a new genus, *Pogonodon*.] W. H. D.

Davies, W. On some Fish Exuvie from the Chalk, generally referred to *Dercetis elongatus*; and on a new species of Fossil Annelide, *Terebella Lewesiensis*. *Geol. Mag.* dec. ii. vol. vi. pp. 145-148. (See also *post*, under INVERTEBRATA.)

Davis, J. W. Notes on *Pleurodus affinis*, sp. ined., Agassiz, and Description of three Spines of Cestracionts from the Lower Coal-measures. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 181-188, pl. x.

The following new forms are described:—*Hoplanchus* (n. gen.) *elegans*, *Ctenacanthus æquistriatus*, *Phricacanthus* (n. gen.) *biserialis*, all presumably from near Halifax. W. W.

——. *Ostracanthus dilatatus* (gen. et spec. nov.), a Fossil Fish from the Coal Measures south of Halifax, Yorkshire. *Proc. Yorksh. Geol. Soc.* vol. vii. pt. ii. pp. 191-195. Abstract in *Rep. Brit. Assoc.* 1879, p. 343.

Thinks this ichthyodorulite to belong to a form allied to Teleosteans.

——. Description of a new Species of Fossil Fish Spine, *Ctenacanthus minor*, from the Lower Coal-measures of Yorkshire. *Geol. Mag.* dec. ii. vol. vi. p. 531.

From the Black Bed Coal, Dudley Hill, Bradford.

Filhol, H. Étude des Mammifères Fossiles de Saint-Gérard le Puy (Allier). [Fossil Mammals of St. Gérard le Puy.] *Ann. Sci. Géol.* t. x. no. 3, pp. 1-252, tab. 1^{bis}-30.

The fossils studied come from beds of the age of the Phrygania limestone or middle Gergovia beds of Auvergne. This study is the result of the collation of many collections which have taken over 40 years to form. The following are described as new:—*Palæoerinaceus* (n. gen.) *Edwardsi*, an insectivore allied to the hedgehog and to *Gymnurus*. Rodent: *Sciurus Chalaniati*. Carnivores: *Amphicyon ambiguus*, *A. crucians*, *Cephalogale minor*, *Plesictis minimus*, *Herpestes priscus*, *Mustela Lemanensis*, *Proailurus Julieni*, *P. Lemanensis*. Marsupial: *Amphiperatherium* (n. gen.) *Lemanense*. Many changes of genera are made, e. g. *Cænotherium gracile*, Pomel, is referred to *Plesiomeryx*; while in some cases species of previous authors are merged together; thus, *Plesictis robustus*, *P. gracilis*, *P. Croizeti*, Pomel, are all referred to one species.

E. B. T.

Flower, Prof. W. H. Catalogue of Specimens illustrating the Osteology and Dentition of Vertebrated Animals Recent and Extinct, contained in the Museum of the Royal College of Surgeons. Part I. Man. London.

— Visit to the Museum of the Royal College of Surgeons. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 171, 172.

Describes especially the Cetacea.

Forsyth-Major, Dr. C. I. Materiali per servire ad una storia degli Stambecchi. [History of the Ibex.] *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 1-56, pls. i.-vii.

Describes the characteristics of 7 species of *Ibex*, Recent and Quaternary.

— Alcune Parole sulla *Sphærodus cinctus* (di Lawley) del Pliocene Volterrano. *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 111-116.

Questions the nomenclature. See **Lawley**, GEOLOGICAL RECORD for 1876, p. 259 (both entries).

— Cervi pliocenici del Val d'Arno superiore. [Pliocene Deer.] *Proc. Verb. Soc. Tosc. Sci. Nat.* vol. i. pp. c-cii.

Deals with the changes of the Cervidæ in the newer Tertiary epochs, parallel with those of the Equidæ.

— Alcuni Osservazioni sui Cavalli quaternari. [Fossil Horses.] *Arch. Antrop. Etnol.* vol. ix. fasc. 1, pp. 14.

Frič [Fritsch], Dr. Anton. Ueber einen neuen Fisch aus dem Pläner des Weissenberges bei Prag. 8vo. Prague.

Fric [Fritsch], Dr. Anton. Fauna der Gaskohle und der Kalksteine der Permformation Böhmens. [Permian Coal and Limestone Fauna of Bohemia.] Band i. Heft 1. Pp. 92; 12 pls. 4to. *Prague*.

Describes the beds of the Pilsen and Schlan-Rakowitz Basins. Gives a list of fossils and a history of the classification of Labyrinthodonts. Notices the works of Cope and Gaudry, and describes the following Amphibia (all new species except the 3rd):—*Branchiosaurus* (n. gen.) *salamandroides*, *B. umbrosus*, *B. moravicus* (= *Archegosaurus austriacus*, Makowsky, 1876), *B. ? venosus*, *B. ? robustus*, *Sparodus* (n. gen.) *validus*, *S. crassidens*, *Hylonomus acuminatus*, and *Dawsonia* (n. gen.) *polydens*. [Figures and description of the first and last are given in a review (by H. G. Seeley) in *Geol. Mag.* dec. ii. vol. vi. pp. 521–528, whence this notice is condensed.] W. H. D.

Gaudry, Albert. [*Eurysaurus Raincourti* from near Vesoul.] *Bull. Soc. Géol. France*, sér. 3, t. vi. p. 307.

Note on part of the skull of this saurian, of a new genus and new species, from the base of the Lias. See GEOLOGICAL RECORD for 1878, p. 297. W. H. D.

——. Les Reptiles de l'Epoque permienne aux environs d'Autun. *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 62–77, pls. iii., iv.

Describes vertebræ of *Actinodon*, bones of *Protriton* and of *Pleuronoura Pellati* (new Batrachian genus and species), and a humerus of *Euchirosaurus Rochei* (new Pelycosaurian genus and species). W. H. D.

Gervais, Paul. Description du *Mesosaurus tenuidens*, reptile fossile de l'Afrique australe. 4to. Plate.

Hulke, J. W. Note on *Poikilopleuron Bucklandi* of Eudes Deslongchamps (père), identifying it with *Megalosaurus Bucklandi*. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 233–238, pl. xii.

Notices the literature of *Poikilopleuron*.

——. *Vectisaurus Valdensis*, a new Wealden Dinosaur. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 421–424, pl. xxi.

Vertebræ and ilium from Brixton Chine, I. of Wight, described as a new genus.

——. Note (3rd) on (*Eucamerotus*, Hulke) *Ornithopsis*, H. G. Seeley, = *Bothriospondylus magnus*, Owen, = *Chondrosteosaurus magnus*, Owen. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 752–762.

Describes an unusually perfect dorsal vertebral centrum from the Wealden beds of the cliff near Chilton, I. of Wight. Withdraws the name *Eucamerotus*. Notices Colorado Dinosaurs. W. W.

Issel, A. Appunti paleontologici. IV. Descrizione di due denti d'Elefante raccolti nella Liguria occidentale. [2 Teeth of Elephant, Liguria.] *Ann. Mus. Nat. Genova*, vol. xiv. pp. 16.

Karrer, Felix. Ueber ein fossiles Geweih vom Renthier aus dem Löss des Wiener Beckens. *Verh. k.-k. geol. Reichs.* pp. 149-152. Describes a shed horn of reindeer from the Loess of Heiligenstadt.

Knight, J. R. The Mammoth. *Nat. Hist. Journ.* vol. iii. pp. 161, 162, pl. x.
Notes on occurrences, structure, covering, &c.

Kramberger, D. Beiträge zur Kenntniss der fossilen Fische der Karpathen. [Carpathian Fossil Fish.] 4to. *Cassel.*

Lake, J. J. Reptiles of the Primary Period. *English Mechanic*, vol. xxviii. pp. 438, 439.
Notice of recent researches by Prof. A. Gaudry.

Laube, Dr. Gustav. Notiz über das Murmelthier aus den diluvialen Lehm lagern von Prag. [*Arctomys* from Drift, Prague.] *Verh. k.-k. geol. Reichs.* pp. 183-185.

Lawley, R. Nuovi denti di Notidanus. [Teeth of Notidanus.] *Act. Soc. Tosc. Sci. Nat.* vol. iv.

Leidy, Prof. Fossil Foot Tracks of the Anthracite Coal Measures. *Proc. Ac. Nat. Sci. Philadel.* pp. 164, 165.

Describes and figures *Anthracopus ellangowensis*, n. gen. and sp., from the Mahanoy coal-field.

Lemoine, Victor. Recherches sur les fossiles des terrains tertiaires inférieurs des environs de Reims. [L. Tertiary Fossils of Rheims.] *Ann. Sci. Nat. sér. 6, t. vii.* pp. 57; 4 pls.
Title in GEOLOGICAL RECORD for 1878, p. 299.

——. Recherches sur les Oiseaux fossiles des terrains tertiaires inférieurs des environs de Reims. [L. Tertiary Fossil Birds, Rheims.] 8vo. *Paris.* Pp. 70; 5 pls.

Secondary birds are mostly reptilian in character; the Eocene vertebrata associated with Secondary types of the New World are found in France with Tertiary types. The new species *Gastornis Edwardsii* is described.
W. H. D.

Lortet, Dr., and E. Chantre. Recherches sur les Mastodontes et les faunes mammalogiques qui les accompagnent. *Arch. Mus. Lyon*, t. ii., plate.

Ludwig, Dr. Hubert. *Plesiochelys Menkei*, ein Beitrag zur Kenntniss der Schildkröten der Wealdenformation. [A Weald Turtle, &c.] *Paleontographica*, Bd. xxvi. pp. 1-12, tab. 3; and *Abh. nat. Ver. Bremen*, Bd. vi. pp. 441-454.

A more perfect specimen from Obernkirchen of *Emys Menkei* allows it to be referred to *Plesiochelys*; it shows the upper surface of the back and also a cast of its inner surface, but the ventral shield is absent; it is therefore not quite certain that it may not be a *Pleurosternon*.

E. B. T.

Lydekker, R. Indian Pretertiary Vertebrata. Fossil Reptilia and Batrachia. *Palæontologia Indica*, ser. iv. vol. i. pt. 3, pp. 1-33; 6 plates.

A continuation of the series by Prof. Huxley in the fasciculus describing the vertebrate fossils from Raniganj. Divided into ten parts as follows:—1. Dicynodonts from the Panchet group of Raniganj: describes various parts of the skeleton of *Dicynodon orientalis*, Huxley. 2. *Ankistrodon* (?) from the Panchet group of Raniganj: a reptilian coracoid is doubtfully referred to this genus. 3. Batrachia from the same: a mandible is referred to *Gonioglyptus* and a mandible and cranium to *Pachygonia*. 4. *Titanosaurus* from the Lamela group of Jabalpur and Pisdura: some vertebræ are described as belonging to *T. indicus*; a species previously named and others differing from these are placed in a new species, *T. Blanfordi*. 5. *Megalosaurus* from the Arialur group of Trichinopoli: teeth have been found which it is thought represent another species than *M. Bucklandi*, but it is not named. 6. *Ichthyosaurus* from the Utatur group of Trichinopoli: a series of 15 large vertebræ are described. 7. *Plesiosaurus* from the Umia group of Kach: a mandibular symphysis described. 8. Parasuchian Crocodile from the Denwa group: describes a scute. 9. Amphicelion Crocodile from Cretaceous of Sind: vertebræ and an associated scute described. 10. Table of distribution in time of Fossil Indian Sauropsida and Ichthyopsida.

E. T. N.

——. Further Notices of Siwalik Mammalia. *Rec. Geol. Surv. Ind.* vol. xii. pp. 33-52, plate.

Describes specimens of the following genera:—*Palæopithecus* (new gen., with specific affix "*sivalensis*"), *Macacus*, *Rhizomys*, *Dinotherium*, *Mastodon*, and *Acerotherium*. Gives a Table of Distribution of genera of Siwalik Mammals.

F. D.

——. Notes on some Siwalik Birds. *Rec. Geol. Surv. Ind.* vol. xii. pp. 52-57.

Describes some bones of a Struthoid, of a new Wader (to be described under the name of *Megaloscelornis sivalensis*), and of an Argala.

M'Coy, Prof. A. Prodomus of the Palæontology of Victoria; or Figures and Descriptions of the Victorian Organic Remains. Decade vi. pp. 42, pls. li.-lx. 8vo. Melbourne and London.

The following Tertiary Mammalia are described and figured:—*Macropus Titan* and *Procoptodon Goliah*; and the new species *Cetotolites Leggei*, *C. Pricei*, *C. Nelsoni*, *Physetodon Baileyi*, and *Squalodon Wilkinsoni*.

The following species of Upper Silurian Mollusca are described and figured:—*Cardium Gippslandicum* (n. sp.), *Orthoceras ibex*, *O. bullatum*, *O. capillosum*, *O. lineare*, and *O. striato-punctatum*. *Hinnites Corioensis* (n. sp.) is from the Tertiary. The following species of Tertiary Echinodermata are described and figured:—*Clypeaster Gippslandicus* (n. sp.), *Lovenia Forbesti* (n. sp.), and *Monostychia australis* var. *Loveni*.
R. B. N.

Marsh, Prof. O. C. A new Order of Extinct Reptiles (*Sauranodonta*) from the Jurassic Formation of the Rocky Mountains. *Amer. Journ.* ser. 3, vol. xvii. pp. 85, 86.

Describes *Sauranodon natans* (n. ord., gen., and sp.) resembling *Ichthyosaurus*. From *Sauranodon* Beds (next below *Atlantosaurus* Beds).
W. H. D.

——. Principal Characters of American Jurassic Dinosaurs. Part ii. *Amer. Journ.* ser. 3, vol. xvii. pp. 86–92, pls. iii.–x.

Rehearses the generic characters of *Apatosaurus*, *Atlantosaurus*, *Allosaurus*, *Creosaurus*, and *Labrosaurus*, the last being a new genus to receive *Allosaurus lucaris* (1878).
W. H. D.

——. Additional Characters of the Sauropoda. *Amer. Journ.* ser. 3, vol. xvii. pp. 181, 182.

——. The Vertebrae of Recent Birds. *Amer. Journ.* ser. 3, vol. xvii. pp. 266–269.

The third cervical vertebra of *Ichthyornis* shows a passage from the biconcave fish-like type to the saddle-shaped articulation of modern bird-vertebrae, which is the highest type for strength and freedom.

W. H. D.

——. Polydactyle Horses, Recent and Extinct. *Amer. Journ.* ser. 3, vol. xvii. pp. 499–505.

Gives the genealogy of the horse from the Eocene *Orohippus*, showing by figures the successive changes in the fore and hind feet, forearm, leg, and molar teeth. Notes recent cases of extra hoofs developed from the splints by reversion to the polydactyle type.
W. H. D.

——. Notice of a new Jurassic Mammal. *Amer. Journ.* ser. 3, vol. xviii. pp. 60, 61.

Describes a small marsupial jaw as *Stylacodon gracilis* (n. gen. and sp.) from the Rocky Mountains.

——. Additional Remains of Jurassic Mammals. *Amer. Journ.* ser. 3, vol. xviii. pp. 215, 216.

Describes lower jaws of *Dryolestes vorax* and *Tinodon* (n. gen.) *bellus*, both new sp. from the Rocky Mountains.

Marsh, Prof. O. C. Notice of New Jurassic Mammals. *Amer. Journ.* ser. 3, vol. xviii. pp. 396-398.

Describes lower jaws of the following new species:—*Ctenacodon* (n. gen.) *serratus*, *Dryolestes arcuatus*, *Tinodon robustus* and *T. lepidus*, from the U. Jurassic of Wyoming. W. H. D.

——. Notice of New Jurassic Reptiles. *Amer. Journ.* ser. 3, vol. xviii. pp. 501-505, pl. iii.

Describes the new species *Camptonotus* (n. gen.) *dispar*, *C. amplus*, *Brontosaurus* (n. gen.) *excelsus*, *Stegosaurus unguatus*, and *Cœlurus* (n. gen.) *fragilis*, from U. Jurassic of Wyoming. W. H. D.

Mudge, Prof. B. F. Are Birds derived from Dinosaurs? *Kansas Rev. Sci.* vol. iii. pp. 224-226.

Concludes that Birds have not been derived from Dinosaurs.

Nehring, Dr. H. Die geographischen Verbreitung der Lemminge im Europa jetzt und ehemals. [Range of the Lemming in Past and Present Times.] *Gaa*, pp. 663-671, 712-726.

Newton, E. T. Note on some Fossil Remains of *Emys luteola* from the Norfolk Coast. *Geol. Mag.* dec. ii. vol. vi. pp. 304-306.

From the Mundesley River Bed, a note on the age of which is given by H. B. Woodward.

Osborn, H. F., and Francis Speir, Jun. The Lower Jaw of *Loxolophodon*. *Amer. Journ.* ser. 3, vol. xvii. pp. 304-309, pl. i.

Detailed description of all but the coronoid process of the lower jaw of *Loxolophodon cornutus* from the Bridger Series (Eocene) of Wyoming.

Owen, [Sir] R. On the Association of Dwarf Crocodiles (*Nannosuchus* and *Theriosuchus pusillus*, e. g.) with the Diminutive Mammals of the Purbeck Shales. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 148-155, pl. ix.

These small crocodiles may have preyed on the small mammals. The remains are many (teeth, scutes, vertebræ, bones, and a few skulls). The new genus *Theriosuchus* is described. W. W.

——. Description of fragmentary Indications of a huge kind of Theriodont Reptile (*Titanosuchus ferox*, Ow.) from Beaufort West, Gough Tract, Cape of Good Hope. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 189-199, pl. xi.

Detailed description, chiefly of a set of teeth.

- Owen, [Sir] R. On the Endothiodont Reptilia, with Evidence of the Species *Endothiodon uniseries*, Ow. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 557-564, pl. xxvii.
S. African fossils. The genus resembles the Oudenodonta, order Anomodontia.

——. Monograph on the Fossil Reptilia of the Wealden and Purbeck Formation. Supplement No. 9. *Palæontograph. Soc.* vol. xxxiii. pp. 1-19, pls. i.-iv.

The specimens described are from the "Feather bed" division of the Middle Purbecks. They are referred to the order Crocodilia, and to the following genera and species:—*Goniopholis tenuidens* (n. sp.), *Brachydectes major* (n. gen. and sp.), *B. minor* (n. sp.), *Nannosuchus gracilidens* (n. gen. and sp.), *Theriosuchus pusillus* (n. gen. and sp.), *Nuthetes destructor*.
E. T. N.

——. On the Extinct Animals of the Colonies of Great Britain. *Pop. Sci. Rev.* n. s. vol. iii. pp. 253-273; *Proc. R. Colonial Inst.* vol. x. pp. 267-297. (Lecture to R. Colonial Inst.)

Describes the *Dicynodon*, &c. of the Cape; *Aptornis*, *Dinornis*, and *Notornis* of New Zealand; Marsupials of Australia.

——. On the Occurrence in North America of rare Extinct Vertebrates found fragmentarily in England. Part III. Restoration of *Leiodon anceps*. *Annals*, ser. 5, vol. iv. pp. 53-61, with plate viii. Continued from vol. ii. p. 223.

An account is given of the various remains of Mosasauroid Lacertians found in N. America; and from these the different parts of the endoskeleton are described. Dermal scutes have been obtained in connection with *Leiodon* remains. A restored figure of the skeleton of *Leiodon anceps* is given in the plate.
E. T. N.

——. On the Extinct Wingless Birds of New Zealand. 2 vols. Pp. 512; 130 pls. 4to. *London*.
Reprint of articles from *Trans. Zool. Soc.*

Portis, A. Intorno ad alcune Impronte eoceniche di Vertebrati recentemente scoperte in Piemonte. [Piedmontese Eocene Vertebrates.] *Atti R. Ac. Torino*, vol. xv. fasc. 1. Pp. 10; 1 pl.

——. Di alcuni Fossili terziarii del Piemonte e della Liguria appartenente all'ordine dei Chelonii. [Tertiary Chelonians from Piedmont and Liguria.] Pp. 24; 4 pls. 4to. *Torino*.

Reinhardt, Dr. J. Beskrivelse af Hovedskallen af et Kaempedovendyr, *Grypotherium Darwinii* fra Laplata Landenes plejstocene Dannelser. [Skull of a Giant Sloth, from La Plata Pleistocene.] *K. Dansk. Vid. Selsk. Skrift.* Bække 5, Afd. xii. pp. 353-380; 2 pls. With résumé in French.

1879.

This new genus is characterized by the union of the intermaxillaries with the anterior end of the nasal bones. Dental formula $\frac{4-4}{3-3}$.

Renevier, Prof. E. Les *Anthracotherium* de Rochette. *Bull. Soc. Vaud. Sci. Nat.* vol. xvi. pp. 140-148, pls. 4-8.

The plates are by **Prof. W. Kowalevsky**; notes are added in description of them. The *Anthracotherium* remains come from the lignite beds of Rochette and Couversion near Lausanne, L. Miocene. *A. Laharpei* is a new name, this upper jaw appearing to differ from *A. minus*, Cuv.
E. B. T.

Roger, Dr. Otto. Liste der bis jetzt bekannten fossilen Säugethiere. [List of Fossil Mammalia.] *Corr.-Blatt zool.-min. Ver. Regensburg*, 33 Jahrg. pp. 43-46, 70-92, 131-147.

Rütimeyer, L. Fossile Säugethierreste aus Aegypten. Appendix to **F. Mook's** *Aegypten's vormetallische Zeit*.

Sauvage, H. E. Etude sur les Poissons et les Reptiles des Terrains Crétacés et Jurassiques supérieures de l'Yonne. [Fish and Reptiles of the Cretaceous and Upper Jurassic Formations of the Yonne.] *Bull. Soc. Sci. Hist. Nat. Yonne*, sér. 3, t. i. pp. 20-84, pl. viii.

—. Note sur quelques Plésiosaures des terrains jurassiques. [Jurassic Plesiosaurs.] *Ann. Sci. Nat.* sér. 6, t. viii.

Seeley, Prof. H. G. Note on a Femur and a Humerus of a small Mammal from the Stonesfield Slate. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 456-463.

? *Amphitherium*, *Phascolotherium*, or new type. If the specimens are referred to the same genus they indicate a generalized Marsupial not in any existing division, and suggesting evolution from a Monotreme.
W. W.

—. On the Dinosauria of the Cambridge Greensand. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 591-636, pls. xxxiv., xxxv.

Notices the character of the fossils from various phosphate-workings, and the difficulty of getting associated parts of a skeleton. Doubts the fossils having been derived from other beds. The remains belong to *Acanthopholis horridus*, *Anoplosaurus curtonotus* (? new), *Eucercosaurus tanyspondylus* (? new), *Syngosaurus macrocerus* (? new), *Acanthopholis stereocercus*, *Anoplosaurus major* (n. sp.), *Acanthopholis eucercus*.
W. W.

—. On the Evidence that certain Species of *Ichthyosaurus* were Viviparous. *Quart. Journ. Geol. Soc.* vol. xxxv. Proc. p. 104 (abstract).

Remains of small individuals have been found in those of larger ones.

Seeley, Prof. H. G. On the Dinosauria. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 175-185.

Traces the history and geological distribution of the group, giving the chief characters of the various genera. Insists on their general Crocodilian type; but *Ornithopsis* is more bird-like. W. T.

Theobald, . On a marginal bone of an undescribed Tortoise, from the Upper Siwálíks near Níla, in the Potwár, Punjab. *Rec. Geol. Surv. Ind.* vol. xii. pp. 186, 187; plate.

Describes it under the name of *Cautleya annuliger* (n. sp. and gen.).

Thomas, P. H. [Fossil Horses of Constantine, Algeria.] *Rev. Sci. Nat.* sér. 2, t. i. no. 3.

Describes remains of horses from Pliocene beds on the flanks of valleys, and from the alluvium below.

Toula, F. Ueber das geologisch-paläontologische Material zur Entwicklungsgeschichte der Säugethiere. [Geological and Palæontological Evidence of Mammalian Evolution.] *Schrift. Ver. nat. Kenntn. Wien*, Jahrg. xix.

Traquair, Dr. R. H. On the Structure and Affinities of the Platysomidæ. *Trans. R. Soc. Edinb.* vol. xxix. pp. 343-391; 4 pls.

Defines the genera of this Palæozoic family, placing it in the Accipenserid group. Two new species described, *Mesolepis micropterus* and *Platysomus tenuistriatus*. W. H. D.

——. [Platysomus.] *Geol. Mag.* dec. ii. vol. vi. p. 237.

Platysomus (?) *insignis*, De Kon., belongs to the genus *Eurymotus*.

——. [Platysomidæ.] *Geol. Mag.* dec. ii. vol. vi. p. 576.

States his views of the affinities of the Platysomidæ, which are closely linked to the Palæoniscidæ.

——. Fossil Fishes from the Edinburghshire and Linlithgowshire Oil Shales. *Proc. R. Phys. Soc. Edin.* vol. v. pt. i. pp. 113-128.

Notices several forms of Fishes from the Oakbank Oil-Shales, which are said to be of Calciferous Sandstone age, and describes one new species, *Elonichthys Dunsii*. E. T. N.

——. Evidence as to the Predaceous Habits of the larger Palæoniscidæ. *Proc. R. Phys. Soc. Edin.* vol. v. pt. i. pp. 128-130.

Draws attention to the numerous instances in which remains of other fish have been found in the stomachs or coprolites of the larger Palæoniscidæ; especially noticing the fact that the *Nematoptychius Greenocki*, from Oakbank, has within its abdomen remains of the spiny *Acanthodes*. E. T. N.

Trouessart, E. L. Catalogue des Mammifères vivants et fossiles (Cheiroptera). [Catalogue of Fossil Bats.] *Rev. Mag. Zool.*

Ubaghs, Casimir. Description de quelques grands Vertébrés et d'une nouvelle espèce de Tortue trouvés dans la Craie supérieure de Maestricht. [Description of some large Vertebrates, and a new Species of Tortoise from the U. Chalk of Maestricht.] Pp. 40; 7 pls. 8vo. *Ruremonde.*

Verreaux, J. Note sur l'*Apteria maxima*. *Bull. Soc. Philom. Paris.*

Vigieur, —. Les ancêtres du cheval de l'Europe et ses rapports avec le cheval domestique d'après M. Ecker. [Ancestors of the European Horse.] *Rev. Sci.*

Vogt, C. L'*Archæopteryx macroura*, un intermédiaire entre les oiseaux et les reptiles. [*Archæopteryx*, a Link between Birds and Reptiles.] *Rev. Sci.* pp. 241-248.

Waagan, W. Salt Range Fossils. Part I. Productus Limestone Fossils. Fasc. I. Pisces-Cephalopoda. *Palæontologia Indica*, ser. 13, pp. 72; 6 pls.

Wiedersheim, Dr. Robert. Ueber einen neuen Saurus aus der Trias. *Abh. schweiz. pal. Ges.* Bd. x. p. 6, tab. 1.

The reptile here described as *Basileosaurus Freyi*, n. gen. & sp., was found in a Bunter sandstone quarry at Richen near Basel. The head, shoulder-girdle, and fore extremities are wanting, and the remainder is imperfectly preserved. It is referred provisionally to the reptile rather than to the amphibian group. E. B. T.

Williston, Dr. S. W. Are Birds derived from Dinosaurs? *Kansas City Rev. Sci. Ind.* vol. iii. pp. 457-460.

Woldrich, —. Ueber bearbeitete Thierknochen aus der Diluvialzeit. *Mitth. anthrop. Ges. Wien.*

Woodward, H. B. Mammoth not Pre-Glacial in Britain. [Letter.] *Geol. Mag.* dec. ii. vol. vi. p. 235.

Zigno, A. de. Annotazioni paleontologiche. Sulla *Lithotis problematica* di Gümbel. *Mem. R. Ist. Ven. Sci.* vol. xx. p. 129; pl.

SUPPLEMENT FOR 1874-1878.

Atthey, Thomas. On *Pteroplax cornuta*, H. and A. *Nat. Hist. Trans. Northumberland*, vol. vii. pt. i. pp. 176, 177, pls. xv., xvi. (by William Dinning). [1878.]

From the black shale overlying the Low Main Coal at Newsham. Describes the cranium, some ribs and vertebræ, 3 bones of an extremity, and some scutes. W. T.

Forsyth-Major, C. J. Cavalli fossili italiani. [Italian Fossil Horses.] *Rev. Sci. Ind.* Oct. 1876.

Gaudry, A. Hippopotame fossile de Duvivier. *Bull. Ac. Hippone*, no. 13, p. 25. [1878.]

Günther, Dr. A. The Extinct Reptiles of Rodriguez. *Phil. Trans.* vol. clxviii. pp. 452–456. [1878.]

Günther, Dr. A., and E. Newton. The Extinct Birds of Rodriguez. *Phil. Trans.* vol. clxviii. pp. 423–437, pls. xli.–xliii. [1878.]

[**Howse, Richard.**] Notes on a Paper by Dr. R. H. Traquair on the Structure of the Lower Jaw in *Rhizodopsis* and *Rhizodus*. *Nat. Hist. Trans. Northumberland*, vol. vii. pt. i. pp. 175, 176. [1878.]

Notes a specimen from the black shale at Newsham [Coal-Measures] proving that a certain bone is the premaxilla.

Macchia, C. Intorno alle ossa fossili delle vicinanze di Chieti. *Riv. Sci. Ind. and Rend. R. Ac. Sci. Napoli*, 1874.

———. Comunicazione paleontologica sui resti fossili d'ippopotamo trovati presso Ortona. *Bull. Club alpin. Ital.* vol. x. no. 26. [1876.]

Newton, E., and W. W. Clark. On the Osteology of the Solitaire (*Pezophaps solitaria*, Gmel.). *Phil. Trans.* vol. clxviii. pp. 438–451, pls. xliv.–l. [1878.]

Seghetti, D. Un cervo fossile nel quaternario di Subiaco. [Quaternary Deer, Subiaco.] *Riv. Sci. Ind.* ann. viii. [1876.]

Woldrich, Dr. J. Ueber Caniden aus dem Diluvium. [Dogs from the Drift.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xxxix. pp. 80–84; 6 pls. [1878.]

The *Lupinæ* of Gray are divided into the genera *Cuon*, *Lycorus*, *Canis*, and *Lupus*. The *Vulpinæ* of Gray into the genera *Vulpes* and *Leucocyon*. Chiefly refers to the osteology of *Lupus Suessii*. E. T. N.

Zigno, A. de. Sopra un primo cranio di “*Halitherium*” trovato nei terreni eocenici d'Italia. [Cranium of *Halitherium* from Italian Eocene.] *Atti R. Ist. Ven. Sci.* ser. 5, t. iii. p. 496. [1877.]

See also :—

- Baily, W. H. Labyrinthodonts, Kilkenny Coal: p. 3.
Davies, W. Teeth of *Ovibos*: p. 10.
Davis, J. W. Coal Measure Fish: p. 10.
Dawkins, Prof. W. Mammalia, Creswell Cave: p. 11.
Hinde, G. J. Conodonts (? Fish): p. 318.
Newberry, Prof. J. New American Fish: under Cox, p. 136.
Rivière, Emile. Cave-bones: p. 99.
Sollas, Prof. W. J. *Brontozoum*: p. 32.
Trautschold, H. New Genera of Fish: see *post*, under INVERTEBRATA.
Ubaghs, C. New Cretaceous Reptiles: p. 115.

2. INVERTEBRATA.

Sub-Editor Prof. W. J. SOLLAS, LL.D.

Achiardi, Antonio d'. Nuova Specie di *Trochocyathus* nella Calcaria Titonica di Monte Primo presso Camerino nell' Appennino Centrale. *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 139, 140, pl. x.
Describes *T. Canavarii*.

Alth, Dr. Alojz. O Galicyjskich gatunkach skamenialych otwornio Rodzaju *Gyroporella*, Gumb. [*Gyroporelle* of Galicia.] 8vo. *Krakow*.

Anon. Conchas fósiles de los alrededores de Hauterive. *Cron. Cient.* June.

——. Gab es schon während der Steinkohlenzeit Schmetterlinge? [Carboniferous Butterflies.] *Kosmos*, Bd. v. pp. 218, 219.

——. A Gigantic *Conularia* of the Niagara Group of Hamilton, Ontario. *Canad. Nat.* vol. ix. no. 1, pp. 62, 63.

Dr. Spencer has proposed the name *Conularia magnifica* for this specimen. A short description is given.

Bardin, Abbé. Diagnose de la *Truncatella Hermutei*, Bardin. *Act. Soc. Linn. Bordeaux*, vol. xxxiii. (sér. 4, t. iii.) p. xvii.
Describes this new species from Miocene of Genneteil.

Barrande, J. Système Silurien du centre de la Bohème. 1^e partie. Recherches Paléontologiques. Vol. V. Classe des Mollusques. Ordre des Brachiopodes. [Palæontology of the Silurian and Central Bohemia. Vol. V. Brachiopoda.] Pp. x, 226; pls. 1-71, 71-153. 2 vols. 4to. *Prague and Paris*.

The text offers a few remarks on each species figured, the description of such as are new (465) being deferred. The new names are largely provisional, as in many of the species the characters of the interior are unknown. Possibly many may prove to be only varieties. Chap. i. deals with the nature and causes of varieties and individual variations, chronological and topographical. Chap. ii. deals with vertical distribution in Bohemia, and Chap. iii. with analogies and identities with extra-Bohemian Brachiopods. The 3 new genera (with their species) established are *Clorinda armata* and *C. ancillans*, *Mimulus perversus*, *M. mæra*, and *M. contrarians*, *Patelula bohémica*.
W. H. D.

Barrois, Dr. Charles. Sur quelques espèces nouvelles ou peu connues du terrain crétacé du Nord de la France. [New or little-known Species from the Cretaceous of N. France.] *Ann. Soc. Géol. Nord*, vol. vi. pp. 449-457, pls. iv., v., xii.

The species described are *Ammonites Concyana* (new), *Pleurotomaria Merceyi* (new), *Terebratula Hibernica*, *Pecten concentricus*, *Inoceramus Mantelli*, and *Inoceramus Lezennensis*. A. J. J-B.

Bayle, E. Liste rectificative de quelques noms de Genres. [Correction of some Generic Names.] *Journ. Conchyl.* sér. 3, t. xix. pp. 34, 35. See GEOLOGICAL RECORD for 1878, p. 315.

Haaniceras, Bayle = *Ceratites*, De Haan, not Tournefort. *Lissoceras*, Bayle = *Haploceras*, Zittel, not D'Orbigny. *Echioceras*, Bayle = *Ophioceras*, Hyatt, not Barrande. *Duncania*, Bayle = *Macrocheilus*, Phillips, not Hope. *Inella*, Bayle = *Ino*, Hinds, not Samsuelle. *Opisocardium*, Bayle = *Lunulicardium*, Grey, not Münster. W. R. J.

Berthelin, G. Foraminifères du lias moyen de la Vendée. [Foraminifera of the M. Lias of La Vendée.] *Rev. Mag. Zool.* pp. 18.

Beyrich, E. Ueber *Porocrinus radiatus*. *Sitz. Ges. nat. Freunde Berlin*, no. 4, pp. 60-63.

Describes a specimen from L. Silurian of Russia, with calyx-sculpture like that of *Poteriocrinus radiatus*, Austin, and pore-areas at angles of basals and radials. Refers it to *Porocrinus* of Billings, which he considers to be a Crinoid rather than a Cystid. P. H. C.

Borre, A. P. de. Note sur la *Breyeria borinensis*. *Compt. Rend. Soc. Entom. Belg.* sér. 2, no. xlv. pp. 7-12.

Maintains the Lepidopterous character of this Carboniferous insect. See GEOLOGICAL RECORD for 1878.

Branco, Dr. W. Beiträge zur Entwicklungsgeschichte der fossilen Cephalopoden. [Development of Fossil Cephalopods.] *Paleontographica*, Bd. xxvi. pp. 1-50, tab. 4-13.

By isolating the first or commencing chamber of *Ammonites* two chief forms are observed, classed as *Latisellati* and *Angustisellati*—in the former the external saddle of the first suture is broad, in the latter narrow. The *Latisellati* are all Triassic, the *Angustisellati* include a few Triassic forms, *Pinacoceras*, *Sageceras*, &c., and all the Jurassic and Cretaceous ones. The development of the elements of the suture or lobe-line is traced in succeeding chambers: in the *Latisellati* in the first suture the first lateral lobe and first lateral saddle are either absent or very small, and are added at a later stage of development. The external lobe becomes bifid only at a late stage. In the *Angustisellati* the first lateral lobe and lateral saddle are always present even

in the first suture, and the external lobe is bifid in a very early state of development. As far as the form of the first chamber is concerned, in *Latisellati* it is mostly narrow or globular shallow, in the *Angustisellati* mostly broad or lobster-shaped. E. B. T.

Branco, Dr. W. Die Bryozoen des mittleren Jura der Gegend von Metz. [Bryozoa of M. Jurassic of Metz district.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 308-338.

Sixteen species are discussed, full synonymy being given.

Brongniart, C. On a New Genus of Orthopterous Insect (*Protophasma Dumasii*) from the Upper Coal-measures of Commentry, . . . France. *Geol. Mag.* dec. ii. vol. vi. p. 97.

A translation of the paper noticed in the GEOLOGICAL RECORD for 1878, p. 317.

Buckman, Prof. James. On a series of Sinistral Gasteropods from Somerset and Dorset. *Proc. Dorset Field Club*, vol. iii. pp. 135-140, plate.

Describes and figures 5 species of sinistral shells—*Cirrus Leachi*, *C. nodosus*, *C. intermedius* (new sp.), *C. pyramidalis*, *C. calisto*, from beds of the Inferior Oolites, at Bradford Abbas, Dorset, and East Coker, Somerset. L. C. M.

Busk, Prof. George. Recent Species of *Heteropora*. *Journ. Linn. Soc. (Zool.)* vol. xiv. p. 724.

Describes a species from New Zealand, of interest as representing a genus previously only known in the Crag and Cretaceous formations.

Carpenter, P. H. On the Apical and Oral Systems of the Echinodermata. *Quart. Journ. Micr. Sci.* n. ser. vol. xix. pp. 1-31.

Discusses the homologies of the vault of the Palæocrinoids. Points out that the so-called recent Cystidean *Hyponome* is merely a plated *Comatula*-disc detached from its calyx. P. H. C.

—. On the Nomenclature of the Plates of the Crinoidal Calyx. *Rep. Brit. Assoc.* 1879, pp. 333, 334.

In Palæocrinoids with a dicyclic base the true basals, homologous with those of *Pentacrinus*, are the so-called parabasals or subradials. The plates beneath these, resting on the top stem-joint and hitherto known as basals, are really under-basals, homologous with those of *Encrinus*.

P. H. C.

Carter, H. J. On *Holasterella*, a Fossil Sponge of the Carboniferous Era, and on *Hemiasterella*, a New Genus of Recent Sponges. *Annals*, ser. 5, vol. iii. p. 141, pl. xxi.

Describes *Holasterella conferta* (n. gen. and sp.) as composed of exclusively stelliform spicules. It occurs in the highest bed of the Carboniferous Limestone near Glasgow. W. J. S.

Carter, H. J. On the mode of Growth of *Stromatopora* and on the Commensalism of *Caunopora*. *Annals*, ser. 5, vol. iv. p. 101.

Regards *Stromatopora* as a reef-building organism, and the Devonian Limestone as a *Stromatoporoid* reef. Repeats Roemer's observation that *Caunopora* consists of a "coral" overgrown with *Stromatopora*.

W. J. S.

—. On the Structure of *Stromatopora*. *Annals*, ser. 5, vol. iv. p. 253, pl. xv.

Defines the general characters of the genus, describes its minute structure, and discusses its affinities.

—. On the so-called "Farrington Sponges." *Annals*, ser. 5, vol. iv. p. 431.

Considers that some of these sponges are Lithistids and none Calci-sponges. Supports Sollas's determination of the classificatory position of *Pharetrosporgia Strahani*.

W. J. S.

Champernowne, A. Note on some Devonian *Stromatoporidae* from Darlington, near Totnes. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 67, 68.

From the dolomitic beds of Pit-Park Quarry. Considers the *Stromatoporidae* allied to the *Milleporidae*.

Charpentier, —. Paléontologie microscopique. *Bull. Soc. Linn. N. France*, no. 81.

Colter, J. C. B. Contribuições para o conhecimento da Fauna terciária de Portugal. Fosséis das bacias terciárias marinas do Tejo, do Sado e do Algarve. [Marine Tertiary Fossils, Portugal.] *Jorn. Ac. R. Sci. Lisbon*. no. xxvi. pp. 11.

Coppi, F. Guida o Enumerazione Paleontologica del Modenese. *Rend. R. Acc. Sci. Bologna*.

Cossmann, —. Description de deux espèces nouvelles du Tongrien des environs d'Etampes. [Two new Species from the Tongrien of Etampes.] *Journ. Conchyl.* sér. 3, t. xix. pp. 346-348, pl. xiii. figs. 8-12.

Scissurella Depontaillieri and *Bulla Stampinensis*.

Cotteau, G. Echinodermes réguliers. *Pal. Franç.* sér. i. Terrain Jurassique. Livr. 42, fol. 20-25, pls. 227-250.

—. Echinides nouveaux ou peu connus. [New or little known Echinids.] *Paris*. Pp. 16 ; 2 pls.

—. Description des Echinides du Calcaire grossier de Mons. [Echinides of Calcaire grossier of Mons.] *Mém. cour. Ac. Roy. Belg.* t. xlii. pp. 12, 1 pl.

—. Notice sur les Echinides Urgoniens recueillis par M. Barrois dans la Province d'Oviédo, Espagne. *Ann. Sci. Géol.* t. x. pp. 8, pl. i.

The following are described and figured as new species, *Cidaris MacPhersoni*, *C. Barroisi*, *Rhabdocidaris Cortazori*, *Goniopygus Hispania*, *Codiopsis major*, all from Cap Prieto, in the province of Oviédo, Spain.
E. B. T.

Cotteau, G. Notice sur les échinides de l'étage sénonien du département de l'Yonne et leur répartition dans les différentes zones. [Senonian Echinidæ of the Yonne.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 4.

——. Considérations sur les Echinides de l'étage cénomanien de l'Algérie. [Cenomanian Echinidæ of Algeria.] *Compt. Rend.* t. lxxxviii. p. 778.

Remarks by **Prof. Hébert**, p. 781.

——. Sur les Salenidées du terrain jurassique de la France. [French Jurassic Salenidæ.] *Compt. Rend.* t. lxxxviii. pp. 1216-1218.

Cotteau, Péron, and Gauthier. Echinides fossiles de l'Algérie, description des espèces déjà recueillies dans ce pays et considérations sur leur position stratigraphique. Fasc. 5. Etage cénomanien (2^e et dernière partie). 8 pls.

Dall, W. H. Fossil Molluscs of the Later Tertiary of California. *Proc. U. S. Nat. Mus.* vol. i. pp. 10-16.
Six new species.

Davies, W. On some Fish Exuvie from the Chalk, generally referred to *Dercetis elongatus*, Ag.; and on a New Species of Fossil Annelide, *Terebella Lewesiensis*. *Geol. Mag.* dec. ii. vol. vi. pp. 145-148.

The elongated undulating masses of fishes' scales and bones known as "Petrified Eels" were described as Fishes by Mantell and Agassiz (*Muraena Lewesiensis*, Mantell). The author considers them to be the tubes of Tubicolous Annelids, which he names *Terebella Lewesiensis*.

W. K.

Dawson, Dr. G. M. On a New Species of *Loftusia* from British Columbia. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 69-75, pl. vi.

Describes *Loftusia columbiana*, from the Carboniferous Limestone of Marble Cañon. Describes the microscopic structure, and gives notes on the locality.
R. E., Jun.

Dawson, [Sir] J. W. On the Microscopic Structure of Stromatoporidae and on Palæozoic Fossils mineralized with Silicates in illustration of Eozoon. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 48-66, pls. iii.-v.

States the conclusions arrived at as the result of observations on (1) the question of its structural relations with the Palæozoic fossils of the genus *Stromatopora* and allied genera, and (2) the occurrence in

Palæozoic rocks of fossils mineralized with hydrous silicates akin to the serpentine and loganite found in some of the best-preserved specimens of the Laurentian fossil; there is also a short note on "Imitative forms resembling Eozoon." C. D. S.

Dawson, [Sir] J. W. A Canadian *Pterygotus* (*Pterygotus Canadensis*). *Canad. Nat. n. s.* vol. ix. no. 2, pp. 103-105; 2 woodcuts.

Describes a large ectognath of a *Pterygotus* found in the lower cherty beds of the Niagara series at Hamilton, Ontario.

——. Note on Recent Controversies respecting *Eozoon Canadense*. *Canad. Nat. n. s.* vol. ix. no. 4, pp. 228-240. Abstract in *Journ. R. Micr. Soc.* vol. 3, 1880, p. 471.

Discusses the views held on this subject by Prof. Karl Möbius, Profs. King and Rowney, and Dr. Otto Hahn.

——. Möbius on *Eozoon Canadense*. *Amer. Journ.* ser. 3, vol. xvii. pp. 196-202 (woodcut). Abstract in *Canad. Nat.* vol. ix. no. 2, pp. 105-112, woodcuts 1-5.

A criticism of Prof. K. Möbius's work (see p. 329).

Depontailier, J. Diagnose d'une nouvelle espèce de *Nassa* des argiles bleues de Biot, près Antibes. [New *Nassa* from the Blue Clays of Biot, near Antibes.] *Journ. Conch. Paris*, sér. 3, t. xix. pp. 177, 178.

Nassa Bisotensis.

Dewalque, J. Revue des Fossiles Landeniens décrits par De Ryckholt. [Landenian Fossils described by De Ryckholt.] *Ann. Soc. Géol. Belg.* t. vi. pp. 156-167.

Many of De Ryckholt's species are rejected, as only synonyms. He believed that the Landenian beds, near Tournay, were Cretaceous.

Dewitz, H. Beiträge zur Kenntniss der in den Ostpreussischen Silurgeschieben vorkommenden Cephalopoden. *Schrift. phys.-ökon. Ges. Königsberg*, Jahrg. 20, pp. 162-180, taf. 4, and woodcuts.

Dumortier, E., and F. Fontannes. Description des Ammonites de la zone à Ammonites tenuilobatus de Crussol (Ardèche) et de quelques autres fossiles jurassiques nouveaux ou peu connus. Pp. 167: 19 pls. 8vo. *Lyon*.

Duncan, Prof. P. M. On the Upper Greensand Coral Fauna of Staldon, Devonshire. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 89-97.

The corals appear to have been shallow-water species, and were all encrusting forms. They appear to form the northern expression of the coral fauna of the French and Central European deposits, which are the equivalents of the British U. Greensand. Describes the new forms *Haldonia* (n. gen.) *Vicaryi*, *Stelloria incrustans*, *Baryhelix reticulata*, *Thamnastræa Ramsayi*, *Orosieris Haldonensis*, *Actinacis stellulata*, *A. insignis*, *Trochoseris constricta*, *T. Morrisi*. R. E., Jun.

Duncan, Prof. P. M. On some spheroidal Lithistid Spongida from the Upper Silurian Formation of New Brunswick. *Annals*, ser. 5, vol. iv. pp. 84-91, pl. ix.

Describes certain spheroidal calcareous bodies as possessing the structure of a Lithistid Sponge, but considers that they originally had a calcareous composition. For these fossils the name *Hindia sphaeroidalis* is proposed. W. J. S.

Eaton, A. E. Did Flowers exist during the Carboniferous Epoch? *Nature*, vol. xx. p. 315.

Refers to *Breyeria*, pronouncing it to be an Ephermerid.

——. Der angebliche Steinkohlenzeitschmetterling. [Supposed Carboniferous Butterfly.] *Kosmos*, Bd. v. pp. 461, 462.
Translation of the foregoing.

Eck, H. Ueber einige Triasversteinerungen. [Some Trias Fossils.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 254-281, pl. i.
The new species described are *Latimæandra Vogelgesangi*, U. Muschelkalk, *Trichasteropsis Senfti*, U. Muschelkalk of Eisenach.

Etheridge, Robert, Junr. On the Occurrence of the Genus *Dithyrocaris* in the Lower Carboniferous or Calciferous Sandstone Series of Scotland and on that of a Second Species of *Anthrapalæmon* in these Beds. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 464-474, pl. xxiii.

Describes 5 species of *Dithyrocaris*, 3 of which are undeterminable, and 2 of *Anthrapalæmon*, one (*A. Macconochii*) new.

——. Notes on the Bivalves contained in the Gilbertson collection, British Museum, and figured in Phillips' 'Geology of Yorkshire.' *Geol. Mag.* dec. ii. vol. vi. p. 161.

Notes and descriptions of species of Lamellibranchiata imperfectly described by Phillips.

——. On the Occurrence of the Genus *Ramipora* (Toula) in the Caradoc beds of the neighbourhood of Corwen. *Geol. Mag.* dec. ii. vol. vi. p. 241.

Describes and figures *R. Hochstetteri*, var. *carinata*, new.

——. On the Microscopic Structure of Three Species of the Genus *Cladochonus*, M'Coy. *Geol. Mag.* dec. ii. vol. vi. p. 289, pl. vii.
Aulopora and *Cladochonus Michelini* possess tabulæ: but *C. crassus* does not. It also exhibits other important differences in structure.

Fagot, P. Mollusques quaternaires des environs de Toulouse et de Villefranche (Hte. Garonne). Pp. 27. 8vo. *Toulouse*.

Favre, Ernest. Description des Fossiles des couches Tithoniques des Alpes Fribourgeoises. [Fossils of Tithonian of Canton Fribourg.] *Abh. schweiz. pal. Ges.* Bd. vi. p. 74; 5 pls.

Describes 57 species from the Fribourg Tithonian beds, which are 10 feet thick and lie upon the *A. acanthicus* zone, being succeeded by Neocomian. Of these species 29 are exclusively Tithonian, while 17 pass up from Jurassic beds; and 4 occur in the Cretaceous. *Terebratula janitor* is held to be common both to beds above and below. These Tithonian beds are here divided into Upper and Lower as indicated by the distribution of the fauna. *Haploceras pseudocarachteis* and *Terebratula Datensis* are described as new. E. B. T.

Fischer, P. Note sur le *Xenophora crispa*, König (sp.). *Journ. Conchyl.* sér. 3, t. xix. pp. 210-212.

Points out the confusion existing as regards the various forms referred to *X. crispa*, and proposes for that from the Astésan the name of *X. commutata*; for that from Ficarazzi, *X. trinacria*; for the Mediterranean species, *X. Mediterranea*, *X. Tiberi*; and for that from the W. coast of Africa, *X. Senegalensis*; at the same time describing their differences. *X. commutata* and *X. Trinacria*, n. sp. W. R. J.

——. Subdivisions des Ammonites. [Subdivisions of the Ammonites.] *Journ. Conchyl.* sér. 3, t. xix. pp. 217-260.

Gives a review of the various classifications from 1801.

——. Note sur une monstruosité de l'*Acanthothyris spinosa*, Schlotheim. [Monstrosity of *Acanthothyris spinosa*, Schlotheim.] *Journ. Conchyl.* sér. 3, t. xix. pp. 343-345, pl. xiii. figs. 4-7.

Fischer, P., and R. Tournouër. Diagnoses Molluscorum fossilium. [Fossil Mollusca.] *Journ. Conchyl.* sér. 3, t. xix. p. 50.

Ostrea Sellei and *Voluta miocenica*, n. sp.

Fontannes, F. Description de quelques espèces et variétés nouvelles des terrains néogènes du plateau de Cucuron. [New Fossils, Cucuron.] *Bull. Soc. Géol. France*, sér. 3, t. vi. pp. 513-530; pls. v., vi.

The many new species described are the same as those in the GEOLOGICAL RECORD for 1878, p. 68.

——. Les Invertébrés du Bassin Tertiaire du Sud-est de la France. [The Invertebrates of the Tertiary Basin of S.E. France.] T. i. fasc. 1-3, pp. 76; 9 pls. *Lyon*, &c.

An account of the Pliocene Mollusca from the valley of the Rhone and the Roussillon.

Fontannes, F. Diagnoses de quelques espèces nouvelles des "calcaires du château" de Crussol (Ardèche). [Diagnoses of some new species from the Calcaires of the Château of Crussol.] Pp. 11. 8vo. *Lyon*.

——. Description des Ammonites des Calcaires du Château de Crussol, Ardèche. (Zones à *Oppelia tenuilobata* et *Waagenia Beckeri*.) Pp. xi, 133; 13 plates (fossils). *Lyon*.

Introduction, pp. v-xi; Ammonites of the Limestones of Château de Crussol, 1-103; Stratigraphical Considerations, 105-119; Conclusions, 120; Alphabetical Index, 121, 122. T. W. N.

——. Etudes stratigraphiques et paléontologiques pour servir à l'histoire de la période tertiaire dans le bassin du Rhone. Fasc. V. Description de quelques espèces nouvelles ou peu connues. [Stratigraphy and Palæontology of the Tertiary Period in the Rhone Basin. Description of some new or little-known species.] *Ann. Soc. Agric. Lyon*, p. 60; 3 pls.

Foresti, L. Contribuzione alla conchiologia fossile italiana. [Contribution to Fossil Conchology of Italy.] *Mem. Ac. Sci. Bologna*, ser. 3, t. x. pt. 1, p. 21; pl.

Fromentel, de. Zoophytes. *Pal. Franç.* Sér. 1, *Terrain Crétacé*. Livr. 28, fol. 31, 32, pls. 121-132.

Fuchs, T. Ueber die von Dr. E. Tietze aus Persien mitgebrachten Tertiärversteinerungen. [Tertiary Fossils from Persia.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xl. p. 99; 6 pls.

Geinitz, Dr. H. B. [Specimens from the Luga Colliery, Saxony.] *Sitz. Isis Dresden*, pp. 7-13, pl. 1.

Figures *Arthropleura armata* and *Estheria Freysteinii*, describes the plant remains, and gives a description by Deichmüller of a wing of *Blattina dresdensis*, n. sp., from the L. Permian, Weissig. W. H. D.

——. [Note on *Nereites*.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 621-627.

Alludes to various worm-track marks or doubtful Algæ in rocks, and announces his agreement with Sterzel's view that *Palæojulus* is the same thing as *Scolecoperis*, a fern. E. B. T.

Gemmellaro, G. G. Sopra alcune Faune Giuresi e Liasiche della Sicilia. VIII. Sopra i fossili del calcare cristallino delle Montagne del Casale e di Bellampo nella provincia di Palermo. [Fossils of Crystalline Limestone of the Province of Palermo.] *Giorn. Sci. Nat. Econ. Palermo*, vol. xiv. p. 157.

——. Sopra alcune Faune Giuresi e Liasiche di Sicilia. Studi paleontologici. Fasc. 9. [Jurassic and Liassic Fauna of Sicily.] 4to. *Palermo*. Pp. 328-384, tav. 26-28. Continuation, see *GEOLOGICAL RECORD* for 1878, p. 326.

Gemmellaro, G. G. Sopra due nuovi generi di Gasteropodi provenienti dalla zona a *Terebratula Aspasia*. [Two new genera of Gasteropoda from the *Ter. Aspasia* Zone.] *Bull. Soc. Sci. Nat. Palermo*.

Girard, M. Un spectre fossile. *La Nature*, t. vii. pp. 108–110. *Protophasma Dumasi*, Brongn. [See **Brongniart**.]

Goss, Herbert. The Insect Fauna of the Secondary or Mesozoic Period, and the British and Foreign Formations of that Period in which Insect Remains have been detected. *Proc. Geol. Assoc.* vol. vi. no. 3, pp. 116–150.

Insects occur most plentifully in the Rhætic, Lias, and Purbeck; they are also found in the Hastings Sand and other Neocomian beds, Kimmeridge Clay, Oxford Clay, Forest Marble, Great Oolite, and Stonesfield Slate. They are rarely entire; the remains generally consist of wings or parts of wings. On pp. 131–137 is given an account of the insect fauna of the continent (Cretaceous to Trias). On pp. 138–150 a complete list of all recorded species from Europe and America. W. T.

—, Introductory Papers on Fossil Entomology.—4. On the Insecta of the Carboniferous Period, and the animals and plants with which they were correlated.—5. On the Insecta of the Permian Period, and the animals and plants with which they were correlated.—6. On the Insecta of the Triassic Period, and the animals and plants with which they were correlated.—7 (Part 1). On the Insecta of the Jurassic Period, and the animals and plants with which they were correlated. (Lias.)—7 (Part 2). On the Insecta of the Jurassic Period, and the animals and plants with which they were correlated. (Oolites.)—8. On the Insecta of the Cretaceous Period, and the animals and plants with which they were correlated.—9. On the Insecta of the Eocene Period, and the animals and plants with which they were correlated. *Entomologist's Monthly Magazine*, vol. xv. pp. 169–173, 226–228, 245, 246, and vol. xvi. pp. 7–10, 25–29, 58–60, 124–128.

Continuation of the series noticed in the *GEOLOGICAL RECORD* for 1878, p. 327.

Gosselet, —. M. Barrande et les céphalopodes siluriens de la Bohême. *Rev. Sci.*

Hall, E. E. A Fossil from the Tertiary. *Atlantic Monthly*, July.

Hall, Prof. James. Palæontology of New York. Vol. v. part 2. Containing descriptions of the Gasteropoda, Pteropoda, and Cephalopoda of the Upper Helderberg, Hamilton, Portage, and Chemung Groups. 4to. *New York*. Pp. 492. [See *GEOLOGICAL RECORD* for 1878, p. 328.]

Hall, Prof. James. Descriptions of New Species of Fossils from the Niagara Formation at Waldron, Indiana. Pp. 20. *New York.*
Over 40 new species described, including the new genus *Ampheristocrinus*.

Hannay, J. B. On Siliceous Fossilization. *Mem. Lit. Phil. Soc. Manch.* vol. vi. pt. 3, p. 234. [See GEOLOGICAL RECORD for 1878, p. 329.]

Hanstein, R. Die Brachiopoden der oberen Kreide von Ciply. [Brachiopoda of U. Chalk, Ciply.] Inaugural Dissertation. 8vo. *Bonn.*

Harpe, Dr. Ph. de la. Les Nummulites du Comté de Nice, et l'échelle des Nummulites. [Nummulites of Nice, &c.] *Bull. Soc. Vaud. Sci. Nat.* t. xvi. pp. 201-242, pl. x.

The species found at Nice are critically examined and referred to their precise position. Many are reduced to the rank of varieties only, while some varieties are noted. *N. anomala* from Menton-Garavau is described as new. In apportioning them to their respective horizons a scale of succession is drawn up; eight zones are given with two species characteristically abundant in each, and these zone-species agree in the main with the zoological groups of D'Archiac. The correct horizon of many other species still remains to be determined. E. B. T.

— Description des Nummulites appartenant à la zone supérieure des falaises de Biarritz. [Nummulites of the Upper Zone of Biarritz Cliffs.] *Bull. Soc. Borda*, p. 146, pl. i.

— Coup d'œil général sur les nummulites de Biarritz. *Bull. Soc. Borda.*

Hector, Dr. J. On the Fossil Brachiopoda of New Zealand. (Abstract.) *Trans. N. Zealand Inst.* vol. xi. (*Proc.*) pp. 537, 538.

Proposes 3 new genera of Spiriferinæ:—*Rastelligera* for Spiriferinæ with denticulated hinge-margins (Triassic and Rhætic); *Pseioidea* for Spiriferinæ with peculiar dental plates (Silurian to Rhætic); and *Clavigera*, allied to *Athyris* (Triassic and Rhætic). R. E., Jun.

Heilprin, Angelo. On some new Eocene Fossils from the Claiborne Marine Formation of Alabama. *Proc. Ac. Nat. Sci. Philadel.* pp. 211-216, pl. xiii.

Teinostoma rotula.
Delphinula solaroides.
Solarium striato-granulatum.
Natica bi-sulcata.
Odoestomia lævigata.
Tornatella biconcava.
Pisania bucciniformis.

Conus pulcherrimus.
Pleurotoma insignifica.
Melania claibornensis.
Rissoina plicato-varicosa.
Mesostoma rugosa.
Costellaria Whitfieldi.

All new species are described and figured.
1879.

W. H. D.
Y

Hilber, Dr. Vincenz. Ueber die Abstammung von *Cerithium disjunctum*, Sow. *Verh. k.-k. geol. Reichs.* pp. 124, 125.

Traces *C. disjunctum* from *C. pictum*, through *C. theodiscum*, an undescribed species from the Gamlitz lignite.

—. Neue Conchylien aus den mittelsteirischen Mediterranschichten. [New Shells from Styrian Miocene.] *Sitz. k. Ak. Wiss. Wien*, Bd. lxxix. Abth. 1, pp. 416-464; 6 pls.

The following shells, described as new, come from beds considered to be the base of the upper or second Mediterranean stage, Styria (Miocene):—

<i>Cypræa</i> Neumayeri.	<i>theodiscum</i> , <i>C. biquadratum</i> , <i>C. noricum</i> , <i>C. Sturi</i> , <i>C. ferrugatum</i> .
<i>Columbella</i> Petersi, <i>C. carinata</i> .	<i>Turbo monachus</i> .
<i>Buccinum</i> collari, <i>B. tonsura</i> , <i>B. Toulai</i> , <i>B. Polsense</i> , <i>B. styriacum</i> , <i>B. intersulcatum</i> , <i>B. obliquum</i> , <i>B. nodosocostulum</i> , <i>B. ternodosum</i> , <i>B. cerithiforme</i> .	<i>Adeorbis quatercarinatus</i> , <i>A. Woodiformis</i> .
<i>Purpura styriaca</i> .	<i>Natica</i> Hoernesii.
<i>Murex crassilabiatus</i> .	<i>Rissoa denudata</i> .
<i>Clavatulæ</i> Auingeri, <i>C. Floriana</i> , <i>C. descendus</i> , <i>C. styriaca</i> .	<i>Corbula Theodisca</i> .
<i>Cerithium</i> Florianum, <i>C. nodosostriatum</i> , <i>C. Gamlitzense</i> , <i>C. Rollei</i> , <i>C.</i>	<i>Tellina</i> Floriana, <i>T. Pöelsensis</i> .
	<i>Cardium clavatum</i> .
	<i>Lucina subornata</i> .
	<i>Pecten Styriacus</i> , <i>P. Sausalicus</i> .

E. B. T.

—. Diluviale Landschnecken aus Griechenland. Pp. 4. 4to. *Vienna*.

Hilgendorf, —. Zur Streitfrage des *Planorbis multiformis*. [Controversy respecting *Planorbis multiformis*.] Pp. 22. 8vo. *Leipzig*.

Hinde, G. J. On Conodonts from the Chazy and Cincinnati group of the Cambro-Silurian, and from the Hamilton and Genesee-shale divisions of the Devonian in Canada and the United States. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 351-369, pls. xv.-xvii.

Gives a history and discusses the nature of this fossil. Describes and figures many species, of which the following are new:—

From the Cincinnati group, N. America.

Prioniodus ? politus. | *P. furcatus*.

From the Hamilton and Genesee Shale divisions of the Devonian.

<i>Prioniodus</i> erraticus, <i>P. abbreviatus</i> , <i>P. clavatus</i> , <i>P. angulatus</i> , <i>P. acicularis</i> , <i>P. armatus</i> , <i>P. spicatus</i> , <i>P. Panderi</i> , <i>P. ? alatus</i> .	<i>nasutus</i> , <i>P. coronatus</i> , <i>P. solidus</i> , <i>P. crassus</i> , <i>P. (?) serratus</i> , <i>P. (?) eriensis</i> , <i>P. (?) curvatus</i> , <i>P. pennatus</i> , <i>P. tuberculatus</i> , <i>P. cristatus</i> , <i>P. truncatus</i> , <i>P. punctatus</i> , <i>P. linguiformis</i> , <i>P. palmatus</i> , <i>P. simplex</i> .
<i>Polygnathus</i> (n. gen.) dubius, <i>P. duplicatus</i> , <i>P. radiatus</i> , <i>P. immersus</i> , <i>P.</i>	

W. J. S.

Hinde, G. J. On Annelid Jaws from the Cambro-Silurian, Silurian, and Devonian Formations in Canada, and from the Lower Carboniferous in Scotland. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 370-386, pls. xviii.-xx.

Consists of an introduction, bibliography, an account of the beds in which the jaws occur, and a description of the jaws. From the Cincinnati or Hudson River group at Toronto the following are described as new species :—

<i>Eunicites</i> major, <i>E.</i> contortus, <i>E.</i> perdentatus, <i>E.</i> simplex, <i>E.</i> gracilis, <i>E.</i> ? digitatus.	<i>gibbosus</i> , <i>A.</i> asialis, <i>A.</i> rectus, <i>A.</i> limatus, <i>A.</i> cristatus, <i>A.</i> cervicornis, <i>A.</i> pectinatus, <i>A.</i> crenulatus, <i>A.</i> quadratus, <i>A.</i> scutellatus, <i>A.</i> ? obliquus.
<i>Cenonites</i> (n. gen.) curvidens, <i>Ce.</i> inequalis, <i>Ce.</i> serratus, <i>Ce.</i> rostratus, <i>Ce.</i> cuneatus, <i>Ce.</i> ? carinatus.	<i>Lumbriconereites</i> dactylodus.
<i>Arabellites</i> (n. gen.) hamatus, <i>A.</i> cornutus, <i>A.</i> cuspidatus, <i>A.</i> ovalis, <i>A.</i>	<i>Glycerites</i> (n. gen.) sulcatus, <i>G.</i> sulcatus var. excavatus.

From the Clinton and Niagara groups (Silurian) (all new species) :—

<i>Eunicites</i> Clintonensis, <i>E.</i> coronatus, <i>E.</i> chiromorphus.	<i>Lumbriconereites</i> basalis, <i>L.</i> triangularis, <i>L.</i> armatus.
<i>Cenonites</i> amplus, <i>Ce.</i> fragilis, <i>Ce.</i> ? infrequens.	<i>Staurocephalites</i> (n. gen.) niagarensis.
<i>Arabellites</i> elegans, <i>A.</i> similis.	<i>Glycerites</i> calceolus.

From the Hamilton group of the Middle Devonian :—

<i>Eunicites</i> ? alveolatus, <i>E.</i> tumidus, <i>E.</i> palmatus, <i>E.</i> nanus.	<i>Arabellites</i> politus, <i>A.</i> similis var. arcuatus.
<i>Cenonites</i> compactus.	<i>Nereidavus</i> solitarius.

From the Lower Carboniferous of Scotland :—

<i>Eunicites</i> affinis.	<i>Arabellites</i> scoticus.
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W. J. S.

Hörnes, R., and M. Auinger. Die Gasteropoden die Meeres-Ablagerungen der ersten und zweiten miocänen Mediterranstufe in der Oesterreichisch-Ungarischen Monarchie. *Abh. k.-k. geol. Reichs.* Bd. xii. Heft 1, Lief. 1, 2, 3 ; 6 pls. Vienna, 1879-1882.

The new species are :—

<i>Chelyconus</i> Suessi, <i>C.</i> Johannæ, <i>C.</i> Lapugyensis, <i>C.</i> transylvaticus, <i>C.</i> praelongus, <i>C.</i> Schrökingeri, <i>C.</i> olivæformis, <i>C.</i> Sturi, <i>C.</i> Mariæ, <i>C.</i> rotundus, <i>C.</i> Ottiliæ.	<i>Dendroconus</i> Neugeboreni, <i>D.</i> Voelansensis, <i>D.</i> Reussi, <i>D.</i> Austriacus, <i>D.</i> Gainfahrenensis, <i>D.</i> Dacæ, <i>D.</i> Mojsavari, <i>D.</i> Steindachneri (Hochstetteri).
<i>Rhizoconus</i> Tschermaki, <i>R.</i> Bittneri.	<i>Leptoconus</i> Tarbellianus, <i>L.</i> Berwerthi.
<i>Lithoconus</i> Tietzei, <i>L.</i> Neumayeri, <i>L.</i> Hungaricus, <i>L.</i> Fuchsi, <i>L.</i> Karreri.	<i>Stephanococonus</i> Stachei.

C. D. G.

James, U. P. Descriptions of new Species of Fossils and Remarks on some others from the Lower and Upper Silurian Rocks of Ohio. *Paleontologist*, no. 3, pp. 17-32.

The following are new :—

From the Cincinnati group :

Saccophycus (n. gen.) intortus.	Ptilodictya nodosa.
Lockeia (n. gen.) siliquaria.	Sagenella striata.
Palæophycus flexuosus.	Crania costata, C. asperula, C. alternata.
Stromatopora (?) lichenoides, S. scabra.	Modiolopsis cuneiformis, M. subspatulata.
Fistulipora Siluriana.	
Obolites minutus.	

From the Clinton group :

Alveolites expansa.	Escharina (?) distorta.
Ptilodictya platyphylla.	

R. B. N.

James, U. P. Supplement to Catalogue of Lower Silurian Fossils of the Cincinnati Group. Found at Cincinnati and within a radius of forty or fifty miles. Containing new Genera and about 150 new species, described since the publication of the Catalogue, April 1875, and other identified species, synonyms, &c. *Cincinnati*. Pp. 9-12. And in *Paleontologist*, no. 4, pp. 29-32. See *GEOLOGICAL RECORD*, 1875, p. 312.

The new species described is *Orthis jugosa*.

—, —. Descriptions of newly discovered Fossils. *Paleontologist*, no. 4, pp. 25, 26.

Describes the following new species from the Cincinnati group :—*Brachiospongia tuberculata*, *Zaphrentis (?) ohioensis*, *Orthis neglecta*.

Jones, Prof. T. R. Notes on the Palæozoic Bivalved Entomostraca. No. XIII. *Entomis serratostrata* and others of the so-called "Cypriniden" of the Devonian Schists of Germany. *Annals*, ser. 5, vol. iv. pp. 182-186, pl. xi.

Jones, Prof. T. R., and J. W. Kirkby. Descriptions of the Ostracodous Genus *Bairdia*, McCoy, from the Carboniferous Strata of Great Britain. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 565-580, pls. xxviii.-xxxii.

In addition to a general account of the genus, figures and descriptions are given of some previously described species, and of the following new species :—*Bairdia præcisa*, *B. grandis*, *B. nitida*, *B. circumcisa*, *B. sp. ?*, *B. submuconata*, *B. subelongata*, *B. siliquoides*.

W. J. S.

—, —. Notes on the Palæozoic Bivalved Entomostraca. No. XII. Some Carboniferous Species belonging to the Genus *Carbonia*, Jones. *Annals*, ser. 5, vol. iv. pp. 29-40, pls. ii. & iii.

The following new species and varieties are figured and described:—*Carbonia fabulina*, var. *humilis*, var. *inflata*, var. *subangulata*; *C. scalpellus*; and *Cythere?* (*Carbonia?*) *bairdioides*, besides some old species. A list of bivalved Entomostraca from the Coal-measures of Great Britain is given. W. J. S.

Kayser, Prof. E. Ueber einige neue Versteinerungen aus dem Kalk der Eifel. [New Fossils from Eifel Limestone.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 301–307, pl. i.

The new species described are *Goniatites crispiformis*, *Trachypora circulipora*, *Ptychophyllum eifelense*, from M. Devonian.

Kent, A. U. The Finding of *Terebratula Morierei* at Bradford Abbas, Dorset. *Proc. Dorset Field Club*, vol. iii. pp. 39–41.

Refers to a paper by Walker on this species, and contrasts with it the allied form *T. coarctata*, and figures dorsal, ventral, and side views of both from specimens in possession of Prof. Buckman, Bradford Abbas, Dorset. T. C. M.

Koenen, A. von. Die Kulm-Fauna von Herborn. *N. Jahrb.* pp. 36; 2 pls.

Kuntze, Dr. Otto. Zur Eozoon-Frage. *Das Ausland*, pp. 681–687.

Lapworth, Prof. C. On the Geological Distribution of the Rhabdophora. *Annals*, ser. 5, vol. iii. pp. 243–257 and 449–455. Treats of the classification of the Rhabdophora.

La Roche, Miguel M. Y. [Palæontology of the Canaries.] *Revista de Canarias*, June 8.

Linnarsson, G. Om Faunan i lagren med *Paradoxides ölandicus*. 8vo. *Stockholm*.

—. Om Gotlands graptoliter. [Gothlandic Graptolites.] *Öfv. K. Vet.-Akad. Förh.* no. 5. Also separately published: *Sver. Geol. Undersökn.* ser. C, no. 37; pp. 10, 1 plate. 8vo. *Stockholm*.

A few well-preserved Graptolites in limestone (*Monograptus priodon* and *Retiolites Geinitzianus*) from the U. Silurian island of Gotland, in the Baltic, are described and figured. E. E.

—. Om Faunan i kalken med *Conocoryphe exsulans* (Coronatus-kalken). [Fauna of the Limestone with *Conocoryphe exsulans*.] *Sver. Geol. Undersökn.* ser. C, no. 35; pp. 31, 3 pls. 8vo. *Stockholm*.

At some places in Scania (Sweden) this limestone was found. It belongs to the lower part of the zone with *Paradoxides Tessini*. Only very few of its fossils are known out of Scandinavia. 16 species are

described and figured, the following being new:—*Selenopleura parva*, *Conocoryphe exsulans*, *C. tenuicincta*, *C. impressa*, *Metoptoma Barrandei*, *Acrothele intermedia*.
E. E.

Locard, Arnold. Description de la Faune de la Molasse marine et d'eau douce du Lyonnais et du Dauphiné. [Fauna of the Marine and Freshwater Mollasse of the Lyonnais and of Dauphiné.] *Arch. Mus. Lyon.* t. ii. pp. 284; 2 pls.

——. Description de la Faune malacologique des terrains quaternaires des environs de Lyon. [Mollusc-fauna of the Quaternary, Lyons.] *Ann. Soc. Agric. Lyon.* pp. xiv, 208, plate.

Loriol, P. de. Monographie des Crinoides fossiles de la Suisse (Part 3). *Abh. schweiz. pal. Ges.* Bd. vi. pp. 125–300, pls. xv.–xxi.

Besides the descriptions of many old and 31 new species this concluding part contains stratigraphical and zoological lists of the Swiss fossil Crinoids, with general remarks upon their distribution. A new genus, *Gymnocrinus*, is proposed. *Balanocrinus*, Agassiz, is re-defined; and the occurrence of *Ophiocrinus*, Semper (not Salter nor Angelin), is noted. The new species are:—

1. Jurassic.

<i>Pentacrinus</i> Jaccardi, <i>P. brotensis</i> , <i>P. lupeingensis</i> , <i>P. trabalis</i> , <i>P. buchganensis</i> (Cartier), <i>P. solodurinus</i> . <i>Balanocrinus</i> (<i>Pentacrinus</i>) Moeschi, <i>B. Stockhornensis</i> , <i>B. Campichei</i> , <i>B. Cartieri</i> , <i>B. Matheyi</i> .	<i>Eugeniocrinus</i> Quenstedti, <i>E. rimatus</i> , <i>E. Oosteri</i> . <i>Phyllocrinus</i> apertus, <i>P. gracilis</i> . <i>Gymnocrinus</i> Moeschi. <i>Antedon</i> Greppini, <i>A. Jutieri</i> .
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2. Cretaceous.

<i>Pentacrinus</i> Arzierensis, <i>P. Thiessingi</i> , <i>P. Chavannesi</i> . <i>Balanocrinus</i> (<i>Pentacrinus</i>) Gillerioni. <i>Bourgueticrinus</i> Oosteri.	<i>Phyllocrinus</i> Oosteri, <i>P. Picteti</i> . <i>Antedon</i> Campichei, <i>A. Gillerioni</i> , <i>A. Picteti</i> , <i>A. exilis</i> . <i>Ophiocrinus</i> (<i>Antedon</i>) Hyselii.
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P. H. C.

Lycett, Dr. J. A Monograph of the British Fossil *Trigonia*. No. 5. *Palæontograph. Soc.* vol. xxxiii.

——. On *Trigonia Elisa*, Cornet and Briart. *Geol. Mag.* dec. ii. vol. vi. p. 195.

This species is in Belgium the representative of *T. aliformis*, Park., of Blackdown. *T. Daedalea* var. *confusa* is also common to the Haldon and Belgian deposits.
W. K.

Lyon, V. W. Descriptions of Three New Species of Calceolidæ from the Upper Silurian Rocks of Kentucky. *Proc. Ac. Nat. Sci. Philadel.* pp. 43-46.

C. corniculum, *C. Coxii*, and *C. attenuatus* from the Niagara group.

McLachlan, R. Did Flowers exist during the Carboniferous Epoch? *Nature*, vol. xix. pp. 554, and vol. xx. pp. 5, 6.

Maintains that *Breyeria* is Ephemerid, not Lepidopterous. (See Wallace.)

Maffiote, —. Paleontologia de Canarias. *Revista de Canarias*, June.

Mallada, D. L. Sinopsis paleontológica. *Bol. Com. map. geol. Españ.* t. vi., plates (no text).

Nummulitic, 2, 3, 13, 14, 16, 19, 20.

Jurassic, 21, 23, 25, 31, 32, 34, 36, 41, 42.

New species:—Jurassic: *Dimorphastræa Cortazari* and *D. Castroi* are figured on pl. 25. Nummulitic: *Montlivaultia Egozguei* on pl. 20.

Mansel-Pleydell, J. C. On the Dorset Trigoninæ. *Proc. Dorset Field Club*, vol. iii. pp. 111-134; 5 plates.

Adopting Lycett's classification, describes the five groups found in Dorset—Clavellatæ, Glabræ, Scabræ, Costatæ, and Undulatæ. Describes and figures 9 species from Inf. Oolite, 2 from Oxford Clay, 3 from Coral Rag, 1 from Calcareous grit, 3 from Kimmeridge Clay, 6 from Portland rock and sands, and 4 from Chloritic sands. The descriptions are taken from Lycett's Monograph. *Trigonia conjungens* and *T. literata* recorded for the first time from the Inf. Oolite of Dorset.

T. C. M.

Manzoni, Prof. A. Gli echinodermi fossili della Schlier delle Colline di Bologna. [Echinoderms from the Schlier, Bologna.] *Denkschr. k. Ak. Wiss. Wien*, Bd. xxxix. p. 149; 4 pls.

Martens, Prof. E. von. Trilobites and Limuli. *Naturforscher*, Bd. xii. p. 377; Abstract in *Micr. Journ.* vol. ii. p. 874.

Recapitulates the history of Trilobites, and points out that their relationship to the Isopoda is opposed by the freedom of the head in these latter, and by their constant possession of 7 thoracic and 7 abdominal segments. The Limulus and Trilobites are both regarded as belonging to special and isolated orders of the Crustacea.

E. T. N.

Martin, Dr. K. Die Tertiärschichten auf Java nach d. Entdeckungen von F. Junghuhn bearbeitet. [Javanese Tertiaries.] Part I. Bivalves. Pp. 94; 14 pls. Fol. *Leiden*.

Solarium Javanum, *Strombus Javanus*, *Delphinula fossilis*, *Cassia Herklotzii*, *Nerita Rumphii* are n. sp.

Matherson, P. Recherches paléontologiques dans le Midi de la France. Livr. 5, 6. Text sheet J 1. Pls. A 1, B 8, C 3, 4, 10, 16, 18, 19, 24, J 22, O 1. Fol. *Marseilles*.

Continuation of the work noticed in the GEOLOGICAL RECORD for 1878, pp. 334, 424.

Matthews, Dr. J. On the History and Structure of Corals. *Journ. Quek. Club*, vol. v. pp. 105-119, pl. viii.

Treats chiefly of recent corals; but a short list of fossils found in a Carboniferous Limestone Quarry near Corwen, Llangollen, is given at p. 106. E. T. N.

Maurer, —. On a new Species of *Meganteris*. *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. p. 641.

A species of *Meganteris*, which the author proposes to call *M. ovatus*, occurs in the L. Devonian of the Rhine. No description given.

Meneghini, G. Fossili titoniani di Lombardia. *Proc. Verb. Tosc. Sci. Nat. Pisa*, vol. i. pp. civ-cix.

Describes several species of Cephalopoda, none new.

——. Descrizione dei nuovi Cefalopodi Titonici di Monte Primo e di Sanvicino. *Atti Soc. Tosc. Sci. Nat.* vol. iv. pp. 131-138, pl. x.

The new species *Phylloceras Canavarii*, *Simoceras Ludovicii*, *Aspidoceras Montisprimi*, *Rhynchoteuthis titonica*, and *R. denticulata* are described. W. H. D.

Meunier, Stanislas. Fossiles nouveaux des environs de Paris. [New Parisian Fossils.] *La Nature*.

Miller, S. A. Catalogue of Fossils found in the Hudson River, Utica Slate and Trenton Groups as exposed in the south-east part of Indiana, south-west part of Ohio, and northern part of Kentucky. 8th, 9th, and 10th Ann. Rep. Geol. Surv. Indiana. Pp. 22-56. 8vo. *Indianapolis*.

——. Description of twelve new Fossil Species, and remarks upon others. *Journ. Cincinn. Soc. Nat. Hist.* vol. ii. pp. 104-118, pls. ix., x.

Describes *Holocystites baculus*, *H. Dyeri*, *H. rotundus*, *H. subrotundus*,

H. tumidus, *H. ventricosus*, *Stephanocrinus Osgoodensis*, and *Pisocrinus gemmiformis* from the Niagara Group of Indiana. *P. gemmiformis* is the first *Pisocrinus* found in America. The other species are *Palaeaster Harrisii* from the Hudson Group of Ohio; *Anomalocrinus caponiformis* from the Hudson Group of Cincinnati, with a note of its differences from *A. incurvus*; *Megistocrinus pileatus* from Corniferous limestone, Ohio; and *Lichenocrinus Pattersoni* from L. Silurian, horizon doubtful; also *Trichophycus venosum* from Hudson Group, Cincinnati. P. H. C.

Miller, S. A. Silurian Ichnolite, with definitions of new Genera and Species. *Journ. Cincinn. Soc. Nat. Hist.*

——. Description of two new Species from the Niagara Group and five from the Keokuk Group. *Journ. Cincinn. Soc. Nat. Hist.*

——. Note upon the Habits of some Fossil Annelids. *Journ. Cincinn. Soc. Nat. Hist.*

——. Remarks on the Kaskaskia Group and Descriptions of new Species of Fossils from Pulaskia County, Kentucky. *Journ. Cincinn. Soc. Nat. Hist.* pp. 31-42; 2 pls.

Milne-Edwards, A. Description d'un crustacé fossile provenant des Marnes d'Aix. *Bull. Soc. Philomath. Paris*, nos. 1, 2.

Milne-Edwards, A., and P. Brochi. Note sur quelques crustacés fossiles appartenant au groupe des Macrophthalmiens. *Bull. Soc. Philomat. Paris*, nos. 1, 2.

Möbius, Dr. Karl. Ist das Eozoon ein versteinertes Werzeffüster oder ein Mineralgemenge? [Is Eozoon Organic?] *Die Natur*, nos. 7, 8, 10 (pp. 29), 21 figures.

——. Principal J. W. Dawson's criticism of my Memoir On the Structure of *Eozoon Canadense* compared with that of Foraminifera. *Amer. Journ.* ser. 3, vol. xviii. pp. 177-185.

Replies to Dr. Dawson (see above, p. 312), who furnished all the specimens whence Prof. Möbius, against his previous ideas, decided that Eozoon is inorganic. Maintains this view, and disavows bias.

W. H. D.

——. Prof. Moebius on the Eozöon Question. *Nature*, vol. xx. pp. 272-274 and 297-301.

Moeller, V. von. Die Foraminiferen des russischen Kohlenkalks.
Mém. Ac. Imp. St. Pétersb. sér. 7, t. xxvii. no. 5, pp. 131 ; 7 pls.

The new species are :—

Endothyra Panderi, E. parva.	muna, O. textulariforme, C. elegans,
Fusulinella Struvii, F. crassa.	O. pyriforme.
Spirillina angulata, S. plana, S. irregularis, S. discoidea.	Tetrataxis conica, var. gibba.
Cribrostomum Bradyi, C. gracile, C. com-	Nodosinella Lohseni, N. tenuis.

C. D. S.

——. Paläontologische Beiträge und Erläuterungen zum Briefe Danilewsky's über die Resultate seiner Reise an den Manytsch. [Palæontological Notes to Danilewsky's Letters on his Journey to the Manytsch, S.E. Russia.] *Bull. Ac. Imp. St. Pétersb. tom. xxv. pp. 245-269.*

Notes on Post-Tertiary Mollusca.

Mojsisovics, Dr. E. Vorläufige kurze Uebersicht der Ammoniten-Gattungen der mediterranen und juvavischen Trias. [Sketch of the Ammonites of the Mediterranean Trias.] *Verh. k.-k. geol. Reichs. pp. 133-143.*

Describes 36 genera of Triassic Ammonites—*Sphingites*, *Joannites*, *Megaphyllites*, *Carnites*, *Norites*, *Monophyllites*, *Halorites*, *Juvavites*, *Distichites*, *Tirolites*, *Balatonites*, *Hungarites*, *Aspadites*, *Herachites*, *Sagenites*, *Helictites*, and *Badiotites* being new names. Shows by a table the range of these in 13 zones.

W. H. D.

Moore, Charles. On *Ammonites* and *Aptychi*. *Rep. Brit. Assoc.* 1879, pp. 341-343, and *Journ. R. Micr. Soc.* vol. iii. pp. 604. Believes that the *Aptychus* is not an operculum, but an ovarian sac.

Morris, W. Did Flowers exist during the Carboniferous Epoch? *Nature*, vol. xx. p. 404. Notes a butterfly (?) from the Tipperary Coal Measures.

Nathorst, A. G. Om Spirangium och dess förekomst i Skanes kolförande bildningar. Pp. 13; 2 pls. 8vo. *Stockholm.*

Neumayr, M. Zur Kenntniss der Fauna der untersten Lias in den Nordalpen. 7 pls. 4to. *Vienna.*

Nicholson, Prof. H. A. A Manual of Palæontology for the use of Students, with a General Introduction on the Principles of Palæontology. Ed. 2. Vol. I. pp. 511; Vol. II. pp. 531; woodcuts. 8vo. *Edinburgh and London.*

Revised, partly rewritten, and much augmented.

Nicholson, Prof. H. A. On the Structure and Affinities of the "Tabulate Corals" of the Palæozoic Period, with critical descriptions. Pp. 342; 15 pls. 8vo. *London and Edinburgh.*

Nicholson, H. A., and R. Etheridge, Jun. Descriptions of Palæozoic Corals from Northern Queensland, with Observations on the Genus *Stenopora*. *Annals*, ser. 5, vol. iv. pp. 216-226 and pp. 265-285, pl. xiv.

An account of the corals in Messrs. Daintree and Jack's collections under the following headings:—Introduction, Geological Notes, Lithological Characters of Specimens, Description of Species, Distribution of the Species and Age of the Beds. There is much morphological and critical discussion, with woodcuts and references to bibliography. The following is the list of new species:—*Heliolites Daintreei*, *Stenopora Jackii*, *Archæopora* (n. gen.) *australis*, *Pachypora meridionalis*. The age of most of the beds is Devonian. W. J. S.

—, —. A Monograph of the Silurian Fossils of the Girvan District in Ayrshire, with special reference to those contained in the "Gray Collection." Fasciculus ii. [Trilobita, Phyllopora, Cirripedia, and Ostracoda.] Pp. 137-236, pls. x.-xv. 8vo. *Edinburgh and London.*

The following new species are figured and described, and a table is given showing the Geographical Distribution of the Crustacea in the Girvan District:—

Lichas Geikiei.
Remopleurides (*Oaphyra*) *Barrandii*.
Bronteus Andersoni.
Proetus Girvanensis, P. *procerus*.
Ampyx Macallumi (Salter, MS.),
A. (?) *Macconochiei*, A. *Hornei*.

Cythere Grayana, R. Jones.
Beyrichia comma, R. Jones.
Primitia Barrandiana, R. Jones.
Entomis globulosa, R. Jones.

R. B. N.

Novak, Dr. Ottomar. Ueber *Gryllacris Bohemica*, einen neuen Locustidenrest aus der Steinkohlenformation von Stradonitz in Böhmen. [*Gryllacris Bohemica*, a new Locust from the Coal Measures of Stradonitz, Bohemia.] *Jahrb. k.-k. geol. Reichs.* vol. xxx. pp. 69.

Oehlert, D. Description de deux nouveaux genres de Crinoïdes du terrain dévonien de la Mayenne. [New Devonian Crinoids.] *Bull. Soc. Géol. France*, sér. 3, t. vii. pp. 6-10, pls. i., ii.

Thylacocrinus Vannicoti, n. gen. near *Rhodocrinus*. *Clonocrinus Bigsbyi*, n. gen.: arms formed of a double row of points, and give off pinnule-bearing branches at intervals. *C. spectabilis* = *Melocrinus spectabilis*, Angelin. P. H. C.

Packard, A. S., Jun. The Nebeliad Crustacea as Types of a New Order. *Amer. Nat.* vol. xiii. p. 128.

Proposes that *Ceratiocaris* and allied Palæozoic forms be united with the Nebeliadæ under the new ordinal name of Phyllocarida.

Parkinson, C. The Cephalopoda of the Chalk Marl and Upper Greensand, Isle of Wight. *Sci. Goss.* no. 177, pp. 204, 205, with 12 illustrations.

Mentions and figures some of the commoner species that are found in the neighbourhood of Ventnor.

Parona, C. F. Contribuzione allo studio della Fauna liasica di Lombardia. [Liassic Fauna of Lombardy.] Pp. 11. 8vo. *Milan*.

Quenstedt, F. A. Petrefaktenkunde Deutschlands. Bd. vi. Abth. 2 (Korallen), Heft 7. Text, 8vo; atlas, 18 pls., 4to. *Leipzig*.

Reynès, Pierre. Monographie des Ammonites. Pp. 72. 8vo; Atlas, fol. *Paris*.

This incomplete work is a collection of what had been done by the author. Pp. 1-4. Introduction by Dr. P. de Rouville; pp. 1-8. Distribution of Jurassic and Cretaceous Ammonites in the Natural History Museum of Marseilles; pp. i-xxiv and pp. 1-72. 'Monography of Ammonites: part 1. Lias,' with a titlepage dated 1867. The Atlas consists of 58 plates with over 1100 figures (pls. i.-l., L. Lias; and pls. i.-viii., U. Lias). W. R. J.

Schlüter, Dr. C. Neue und weniger gekannte Kreide- und Tertiär-Krebse des nördlichen Deutschlands. [New Crustacea from N. Germany.] *Zeitsch. deutsch. geol. Ges.* Bd. xxxi. pp. 586-615.

The new species described are *Hoploparia nephropiformis*, Senonian of Coesfeld; *H. sulcicauda*, *H. calcarifera*, from Mucronatus-beds; *Enoploclytia granulicauda* from Cosloptychius-chalk; *Caeloma balticum*, from L. Oligocene; *Dromiopsis gibbosus* from Mucronatus-chalk; *Raninella Schlaenbachi* from Senonian at Graseberg. E. B. T.

Schmidt, Fr. Ueber *Cyathocystis Plantinae*, eine neue Cystideenform aus Reval. [*Cyathocystis*, a new Cystidian.] *Zapiski Imp. S. Peterb. Min. Obsch.*

Found in the Echinosphærites-bed above the "Vaginatenskalk" at Reval in the Russian province of Estland. The calyx formed of a single cup-like piece is sessile on other fossils, usually species of *Chaetetes*. It is covered in by a nearly flat pentagonal disc greatly resembling *Agelacrinus*, but with a single large plate in each interambulacral space, and bordered by a row of marginal plates. Another species, *Cyathocystis rhizophora*, of which less is known, occurs in the Hemicosmites-limestone of the same province. P. H. C.

Scudder, S. H. The Early Types of Insects or the Origin and Sequence of Insect Life in Palæozoic Times. *Mem. Boston Soc.*

Nat. Hist. vol. iii. pt. i. no. 2, pp. 9. (*New York Acad. Sci.*)
Abstract in *Amer. Journ.* ser. 3, vol. xvii. pp. 72-74.
States the epoch of appearance of each order.

Scudder, S. H. Palæozoic Cockroaches (Blattariæ); a complete Revision of the Species of both Worlds, with an Essay toward their Classification. *Mem. Boston Soc. Nat. Hist.* vol. iii. pp. 112; 6 pls.
A complete revision of all the species, with scheme of classification.

Shrubsole, G. W. A Review of the British Carboniferous Fenestellidæ. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 275-284.
Having examined 20 of the 26 so-called species, concludes that they can be reduced to 5. Traces the causes which have contributed to the confusion in the group. The variously described forms are compared and arranged under the 5 species. C. D. S.

Simonelli, Vittorio. Nuovo genere di Rizopodi del Calcare a Nullipore delle vicinanze di San Quirico d' Orcia. [New Miocene Rhizopod Genus.] *Proc. Verb. Soc. Tosc. Sci. Nat.* vol. i. pp. lxxvi, lxxvii.
Describes *Nubeculospira Sanquiricensis*, n. gen. and sp.

Six, Achille. Analyse d'un travail du Dr. K. Mœbius sur L'Eozoon. [Analysis of a Memoir on Eozoon by Dr. Mœbius.] *Ann. Soc. Géol. Nord*, t. vi. pp. 108-112, woodcut.

Sladen, W. Percy. On *Lepidodiscus Lebouri*, a new Species of Agelacrinitidæ from the Carboniferous Series of Northumberland. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 744-751, pl. xxxvii.
Different from *L. squamosus*, with which it has been confounded. Found in the Brigg Limestone (L. Carboniferous), and is the first member of the Agelacrinitidæ recorded from the Carboniferous rocks of Europe. P. H. C.

Sollas, Prof. W. J. On the Genus *Catagma*. *Annals*, ser. 5, vol. iii. p. 169.

Corrects a mistake in his paper on *Catagma* in vol. ii. p. 359.

——. On a new Genus and Species of Renierid Sponge. *Annals*, ser. 5, vol. iii. pp. 404-407, pl. xxx.

Points out the resemblance between a new recent species *Pharetronema zingiberis* (Soll.) and the fossil *Pharetronema Strahani*.

——. On the Replacement of Siliceous Skeletons by Carbonate of Lime. *Rep. Brit. Assoc.* p. 350.

States that the siliceous skeletons of Sponges and Radiolaria are often represented in a fossil state by calcareous pseudomorphs.

Stoppani, A. Paléontologie lombarde. Livr. 56. Pp. 31; 2 pls. 4to. Milan.

Szajnoch, L. Die Brachiopodenfauna der Oolithe von Balin bei Krakau. Pp. 44; 7 plates. 4to. *Vienna*.

Tate, Prof. Ralph. Zoologica et Palæontologica Miscellanea, chiefly relating to South Australia. *Trans. Phil. Soc. Adelaide* for 1878-79, pp. 129-140, pl. v.

1. On a new Genus of Fossil Lamellibranchiata. Family Mactridæ. Describes and figures *Zenatiopsis angustata* (n. sp.) from the Miocene of Muddy Creek, Hamilton, Victoria.

2. On some Recent and Fossil Kelliadæ from South Australia. Describes and figures:—*Lepton crassum* (n. sp.) from River Murray Cliffs, near Morgan, Upper Murravian Series (Miocene); and *L. planiusculum* (n. sp.) from the Upper Aldinga Series (Miocene) of the south side of Port Willunga Jetty. R. B. N.

Terquem, O. Foraminifères et Entomostracés ostracodes du pliocène supérieure de l'île de Rhodes. 4to. *Mém. Soc. Géol. France*, sér. 3, t. i. pp. 135; 14 pls.

Tiberi, N. Céphalopodes, Ptéropodes et Hétéropodes vivants de la Méditerranée et fossiles du terrain tertiaire d'Italie. *Brussels*.

Tomes, R. F. On the Fossil Corals obtained from the Oolite of the Railway Cuttings near Hook Norton, Oxfordshire. *Proc. Geol. Assoc.* vol. vi. no. 4, pp. 152-165.

From the Great and Inferior Oolite. Also from beds stated to be Coralline Oolite at Garsington, but which the author says must be Great Oolite. The following are new species—*Isastræa microphyllia*, *I. Beesleyi*, *Cryptocænia Haimei*, all from the Great Oolite. Some corals pass from the Inferior to the Great Oolite, but the coral-fauna of the latter is characterized by a scarcity of simple species, and by compound forms which are in general amorphous, dendroid, or globular and gibbous. W. T.

Tournouër, R. Description de quelques nouvelles espèces de Coquilles fossiles des terrains tertiaires de l'Espagne et du Portugal. [New Tertiary Shells from Spain and Portugal.] *Journ. Conchyl.* sér. 3, t. xix. pp. 168-177, pl. vi.

Describes the new species:—*Fusus Almeræ*, *Nassa*? *Tarraconensis*, *Bulimus Ribeiroi*, *B.*? *Olisipponensis*, and *Pupa Lusitanica*.

——. Conchyliorum fluviatiliū fossilium, quæ in stratis tertiariis superioribus Rumanæ Dr. Gregorio Stefanescu collegit, novæ species. [Fossil Fluviatile Shells from the U. Tertiaries, Rumania.] *Journ. Conchyl.* sér. 3, t. xix. pp. 261-264.

Describes the new species:—*Melania fossariformis*, *Paludina præcursa*, *P. Rumanæ*? var. *scalaris*, *Unio Stefanescui*, *U. Rumanus*, and *Cardium* (sensu lato) *Stefanescui*. W. R. J.

Tournouër, R. Note sur la synonymie de deux espèces de Mollusques. [Synonymy of two Species of Molluscs.] *Journ. Conchyl.* sér. 3, t. xix. pp. 35, 36.

Points out that De Monterosato has made a genus, *Scutulum*, of patelliform recent Mollusca (1877), and that the name was previously used by himself (1869) for a fossil echinoderm, *Scutulum Parisiense*; also that Brusina described a species of *Mathilda* as *M. Semperi* (1877), having already (1870) used the name without giving a description, and the author had made use of the name when describing a species in 1874. W. R. J.

Trautschold, H. Die Kalkbrüche von Mjatschkowa: eine Monographie des oberen Bergkalks. [U. Carboniferous Limestone of Moscow.] Theil III. *Mém. Soc. Imp. Nat. Mosc.* t. xiv. pp. 101–180; 7 plates.

The following are described as new genera:—*Calliaster* (Echinodermata); *Bothrophyllum* (Actinozoa); *Cymatodus*, *Cranodus*, *Tomodus*, *Chiastodus*, and *Arpagodus* (Pisces).

The new species are as follow:—

Oscinium selleforme.	} Actinozoa.	Pæcilodus grandis, P. circinana.
Clisiophyllum cavum.		Cymatodus plicatulus.
Lithostrotion gorgoneum.		Cranodus zonatus.
Lepidesthes lævis.	} Echinodermata.	Deltodus incrassatus.
Calliaster mirus.		Tomodus argutus.
Phialocomus nona.		Psephodus minor.
Bigenerina mitrata (Foraminifera).		Chiastodus obvallatus.

N.B.—Of the above “new genera,” the following names are pre-occupied—*Tomodus*, L. Agassiz, for a fish; *Calliaster*, Gray, for an Echinoderm; *Cymatodus*, Newberry and Worthen, for a fish.

R. E., Jun.

Tute, Rev. J. S. On an Orthoceras of the Millstone Grit. *Proc. Geol. Soc. W. Riding Yorksh.* vol. vii. pt. i. pp. 82, 83, pl. v. Found in black shale at Bishop Thornton, near Ripon.

Ulrich, E. O. New Genera and Species of Fossils from the Lower Silurian about Cincinnati. *Journ. Cincinn. Soc. Nat. Hist.* vol. ii. no. 1, plate.

32 sp. and the n. gen. *Lepidolites*, *Ropalonaria*, and *Crateripora*.

— Description of a new Genus and some new Species of Bryozoans from the Cincinnati Group. *Journ. Cincinn. Soc. Nat. Hist.* p. 119; plate.

— Description of a Trilobite from the Niagara Group of Indiana. *Journ. Cincinn. Soc. Nat. Hist.* pp. 1–134; plate.

— Catalogue of Fossils occurring in the Cincinnati Group of Ohio, Indiana, and Kentucky. *Journ. Cincinn. Soc. Nat. Hist.* pp. 32.

Vine, G. R. On Carboniferous Polyzoa and Palæocorynæ. *Rep. Brit. Assoc. for 1879*, pp. 350, 351.

Large quantities of Polyzoa in débris from Hairmyres, to be hereafter described. The Palæocorynæ are believed to be species of *Fenestella* and *Polypora*. W. T.

——. On *Palæocoryne* and the development of *Fenestella*. *Sci. Goss.* no. 178, pp. 225–229, 5 woodcuts; no. 179, pp. 247–249.

Gives the history of the genus *Palæocoryne*; denies that it is parasitic: and shows that its various forms are true processes of the *Fenestellæ* on which they are found. A. J. J-B.

——. The Polyzoa of the Carboniferous Era. *Trans. Sheffield Lit. Phil. Soc.* pp. 2.

Waagen, W. Salt Range Fossils of India. Pt. I. *Productus*-Limestone Fossils. Fasc. 1. Pisces, Cephalopoda. pp. 72; 6 plates. 4to. *Calcutta*.

Walcott, C. D. New Calciferous Fossils from Saratoga County, New York. 32nd Ann. Rep. N. York State Mus. Nat. Hist.

Platyceras minutissimum, *Metoptoma cornutiforme*, *Conocephalites calciferus*, *C. Hartii*, and *Ptychaspis speciosus* are described as new species. W. H. D.

Waters, A. M. On the Occurrence of Recent *Heteropora*. *Micr. Journ.* vol. ii. pp. 390–393, plate.

Describes two species of Recent Polyzoa, which are referred to the fossil genus *Heteropora*. One of these from the Gulf of Tartary is described as a new species, but the second, from Adelaide, is referred to D'Orbigny's Chalk species *Heteropora cervicornis*. E. T. N.

Wetherby, Prof. A. G. Description of a new Family and Genus of Lower Silurian Crustacea. *Journ. Cincinn. Soc. Nat. Hist.* pl. 7.

Enoploura is based on *Anomalocystites balanoides*, Meek, removed from Echinodermata.

——. Remarks on the Genus *Pterotocrinus*, Lyon and Casseday. *Journ. Cincinn. Soc. Nat. Hist.* vol. ii. no. 1, pl. viii.

Gives a description of the genus, based on a series of specimens from the Sub-carboniferous of Kentucky. Considers that its nearest alliance is with *Eucalyptocrinus*. Notes the frequent occurrence of a *Platyceras* covering the top of the Gault; probably a case of parasitism. P. H. C.

——. Descriptions of new Species of Crinoids from the Kaskaskia Group of the Sub-carboniferous. *Journ. Cincinn. Soc. Nat. Hist.* vol. ii. pp. 134–140, pl. xi.

Describes *Pterotocrinus acutus*, *P. bifurcatus*, and *P. spatulatus*; also *Forbesiocrinus parvus*.

- White, Dr. C. A. Remarks on the Jura Trias of Western North America. *Amer. Journ.* ser. 3, vol. xvii. pp. 214-218.
 Notes various Jura-Trias fossils from Idaho, and states there are 3 species of a new ammonite genus, *Meekoceras*.

——. Palæontological Papers.—No. 9. Fossils of the Jura-Trias of South-eastern Idaho. *Bull. U. S. Geol. Surv. Terr.* vol. v. pp. 105-117.

Describes the new species *Terebratula semisimplex*, *Aviculopecten Pealei*, *A. altus*, *Meekoceras* (n. gen.) *aplanatum*, *M. mushbachianus*, *M. gracilitatis*, and *Arcestes ? cirratus*. W. H. D.

White, Dr. C. A., and Prof. H. A. Nicholson. Supplement to the Bibliography of North American Invertebrate Paleontology. *Bull. U. S. Geol. Surv. Terr.* vol. v. pp. 143-152.

Correction and continuation of the work noticed in the GEOLOGICAL RECORD for 1878, p. 347.

Wiechmann, A. Pelecypoden des Sternberg Gesteins. *Arch. Ver. Freund. Nat. Mecklenb.* Jahrg. 32.

Wood, S. V. Second Supplement to the Monograph of the Crag Mollusca, with Descriptions of Shells from the Upper Tertiaries of the East of England. Vol. IV. Univalves and Bivalves. *Pal. Soc.* vol. xxxiii. Pp. ii, 58; 6 pls.

New Gasteropods.

Buccinum nudum, B. deolive.	Ancillaria crassistriata (Bell).
Columbella ? (Astyris) sulcata.	Eulima robusta (Bell).
Trophon pseudo-Turtoni.	Natica (Amauropis) japonica (Adams).
Fusus ? obscurus, F. exactus, F. nodifer (Bell).	Amaura hesternia.
Murex pseudo-Nysti, M. Crowfootii.	Adeorbis ? naticoides.
Pleurofoma gracili-costata, P. catenata (Bell).	Cerithium derivatum.
	Odostomia ? derivata.

New Bivalves.

Nucula turgens.	Lucinopsis Lajonkairii, var. subobliqua.
Lucina crassidens.	Pholas intermedia.

Woods, Rev. J. E. T. On some new Fossil Polyzoa. *Journ. R. Soc. N. S. Wales*, vol. xii. p. 57; 2 figs.

——. On new Fossil Corals. *Journ. R. Soc. N. S. Wales*, vol. xii. p. 57.

——. On some Tertiary Fossils from Muddy Ck., Western Victoria. *Proc. Linn. Soc. N. S. Wales*, vol. iii. pt. 3, pp. 222-240, pls. 20, 21.
 1879.

Describes and figures as new species :—

Triton Prattii.	Cerithium cribarioides, C. apheles.
Pisania tenuicostata.	Triforia Wilkinsoni, T. sulcata.
Fusus funiculatus.	Turritella transenna, T. platyspira.
Pleurotoma Samueli, P. murndaliana.	Thalotia exigua.
Mangelia bidens.	Mindlia strigata.
Drillia Trevori.	Solarium acutum, S. wannonense.
Conus Ralphii.	Adeorbis aster, A. acuticarinata.
Ancillaria semilævis.	Trochita turbinata.
Nassa Tatei.	Tornatina involuta.
Cancellaria varicifera.	Leda Huttonii.

The age of the beds is doubtful, but the evidence is in favour of their being Miocene. R. E., Jun.

Woodward, Dr. Henry. Contributions to the Knowledge of Fossil Crustacea. *Quart. Journ. Geol. Soc.* vol. xxxv. pp. 549-556, pl. xxvi.

1. On a fossil *Squilla* from the London Clay of Highgate (*Squilla Wetherelli*, n. sp.).

2. On *Necroscilla Wilsoni*, n. sp., a supposed Stomapod Crustacean from the Middle Coal Measures, Cossall near Ilkeston.

3. On the discovery of a fossil *Squilla* in the Cretaceous deposits of Hâkel, in the Lebanon, Syria (*Squilla Lewisii*, n. sp.).

4. On the occurrence of a Fossil King Crab (*Limulus Syriacus*, n. sp.) in the Cretaceous Formation of the Lebanon.

The four new species are described and figured.

— Notes on a Collection of Fossils and Shells, &c. from Sumatra. *Geol. Mag.* dec. ii. vol. vi. pp. 385-392, 441-444, 492-500, 535-542, pls. x.-xv.

Descriptions, with figures, of the fossils, of which a few are Palæozoic, the rest mostly Tertiary. The following are new species, all being from Tertiary beds, the first two Miocene :—

Lunulocardium limaforme.	Pisania subdiscolor.
Meiocardia sub-Cummingii.	Ranella tritonoides.
Cardita Sumatrensis.	Borsonia granifera.
Sparganilithes gemmatus (n. gen. of plant).	Cerithium Verbeekii.
Conus substriatellus.	Pleurotoma (Glyphostoma) Jonesiana.
Cypræa subelongata.	Turbo Smithii, T. Sumatrensis.
Conus Niasensis.	Monodonta submamilla.
Olivia pseudoaustralis, O. pupæformis.	Turbo Martinianus.
Bulla (Hydatina) crebristriata.	Strombus Sumatranus.
Terebra subacuminata.	Neritina subfossilia.
Phos subplicatus.	Neritopsis Morrisianus.
Turbinella subcostata.	Melania subfossilia, M. sublactea.

W. W.

— Notes on Palæozoic Crustacea: *Eurypterus Scouleri*, Hibbert. *Geol. Mag.* dec. ii. vol. vi. p. 196.

A general description of the species, with diagrams and restoration.

Wright, Dr. Thomas. Monograph on the Lias Ammonites of the British Islands.—Part 2. *Pal. Soc.* vol. xxxiii.

Zigno, A. de. Annotazioni paleontologiche. Sulla *Lithotis problematica* di Gümbel. [Palaeontological notes on some problematical fossils of Gümbel.] 4to. *Venice*.

Zittel, Karl A. Studien über fossile Spongien.—(3rd Part.) Monactinellidæ, Tetractinellidæ, Calcispongien. *Abh. k. bay. Akad. Wiss.* Bd. xiii. Abth. ii. pp. 1–48, pls. xi. & xii. Translated in *Annals*, ser. 5, vol. iii. pp. 304–311, 364–379, vol. iv. pp. 61–73, 120–135.

Of Monactinellidæ the two new genera *Opetionella* and *Scolioraphis* are described; of Tetractinellidæ a new genus, *Tethyopsis*, and the new species *Pachastrella primæva*. Of the Calcispongien no fossil representatives of the Ascones are known, and probably none of the Leucones; a single species of Sycon is described, *Protosycon* (n. gen.) *punctata* (Gdf.). A number of sponges with calcareous vermiculate skeletons are regarded as belonging to an extinct family of Calcisponges, named by the author Pharetrones, in which *Pharetrospongia* is placed. In addition to numerous genera of other authors, the following new genera are described as Pharetrones:—*Himatella*, *Peronella*, *Conocelia*, *Eusiphonella*, *Corynella*, *Blastinia*, *Synopella*, *Pachytelodia*.

W. J. S.

——. Beiträge zur Systematik der fossilen Spongien. [Classification of Fossil Sponges.] Part III. *N. Jahrb.* Heft i. pp. 1–40; 2 plates.

Zittel, K. A., and Prof. W. P. Schimper. Handbuch der Paläontologie. Bd. i. Heft iii. pp. 129–307. [Part 1 in 1876.]

Treats of Sponges, Corals, and Hydrozoa. See GEOLOGICAL RECORD for 1876, p. 300.

SUPPLEMENT FOR 1874–1878.

Alth, A. A galicyjskich Gatunkach skamienialych otwornic Rodzaju *Gyroporella*, Gümb. [On the Galician Species, found fossil, of the Genus *Gyroporella*, Gümbel.] *Rozpr. Ak. Umiej. Krakow*, t. v. [1878.]

Anon. —. A Classified List of Lower Silurian Fossils, Cincinnati Group, by J. Mickleborough and A. G. Wetherby. *Paleontologist*, no. 2, pp. 15, 16.

Notices inaccuracies in this list. See GEOLOGICAL RECORD for 1878, p. 336.

Borre, A. P. de. Empreintes d'insectes fossiles découvertes dans les schistes des environs de Mons. *Journ. Zool.* t. iv. pp. 291-297 [1875], with notes by Prof. Gervais.

Reprint of the second note referred to in the GEOLOGICAL RECORD for 1875, p. 298. The pagination in *Ann. Soc. Entom. Belg.* is 39-42, 56-60, that in *Compt. Rend. Soc. Entom. Belg.* should be no. xii. pp. 4-8, no. xiii. pp. 7-12. Further notes, under the title "Sur trois nouveaux insectes fossiles" in *Compt. Rend. Soc. Entom. Belg.* sér. 2, no. xviii. p. 17, and *Ann. Soc. Entom. Belg.* t. xviii. p. cxv.

Bouillé, R. de. Paléontologie de Biarritz et de quelques autres localités des Basses-Pyrénées. Pt. 2. *Pau*, 1876.

Brugnone, G. Osservazioni sulla *Chemnitzia pusilla* e *Chemnitzia terebellum*, Phil. *Bull. Soc. Mal. Ital.* vol. ii. p. 211. [1876.]

— . Osservazioni critiche sul catalogo delle conchiglie fossili di Monte Pellegrino e Ficarazzi del Marchese di Monterosato. [On M. de Monterosato's Catalogue of Fossil Shells.] *Bull. Soc. Mal. Ital.* vol. iii. p. 17, plate. [1877.]

Clessin, —. Vom Pleistocän zur Gegenwart, eine conchyliogische Studie. *Corr.-Blatt zool.-min. Ver. Regensb.* Jahrg. xxxii. [1878.]

Conrad, T. A. Descriptions of New Mollusks from the Cretaceous Beds of Colorado. Pp. 455, 456, of Hayden's *Ann. Rep. U. S. Geol. Serv. Terr.* for 1873, noticed in the GEOLOGICAL RECORD for 1874, p. 118.

Removes *Haploscapa* from Rudistæ to near *Inoceramus*.

Coppi, F. Le valve dell' *Unio* nelle Terremare. *Arch. Antrop. Etnol.* vol. iv. [1874.]

Cotteau, G. Echinodermes réguliers. *Pal. Franç.* sér. 1, vol. x. Terrain Jurassique. Livr. 37, 38. Pp. 177-224, pls. 191-202. [1877.]

Guiscardi, G. Annotazioni paleontologiche. Pp. 7. *Naples*, 1878.

Issel, Prof. A. [Appendix to Memoir on the Fossils of the Genoa Marls. (See the GEOLOGICAL RECORD for 1877, p. 331.)] *Ann. Mus. Nat. Genoa*, t. x. p. 6. [1877.]

[**James, U. P.**] A Strange Fossil. *Paleontologist*, no. 2, p. 14. [1878.] Describes an appendage found in the blue shale at Cincinnati, which is thought to belong to an Annelid.

[James, U. P.] Remarks on *Helopora dendrina*. *Paleontologist*, no. 2, pp. 14, 15. [1878.]

Remarks as to priority of authorship of species.

Lefèvre, —, and — Watelet. Description de deux Solens nouveaux du bassin tertiaire de Paris. Pp. 8; plate. 8vo. *Brussels*, 1879.

Lubbock, Sir John. On the Origin and Metamorphoses of Insects. Pp. xvi, 108. 16mo. *London*, 1874.

Chap. V., on the origin of insects, remarks on the geological appearance of the several orders.

Martin, Dr. K. Untersuchungen über die Organization von *Astylospongia*, Ferd. Roem., und Bemerkungen über die Natur der Wallsteine, Meyer. *Arch. Ver. Freund. Nat. Mecklenb.* Jahrg. 31, pp. 32, plate. [1877.]

Mayer, Karl. Systematisch Verzeichniss der Versteinerungen des Parisien der Umgegend von Einsiedeln. *Mat. Cart. géol. Suisse*, t. xiv. pp. 100, 4 pls. [1877.]

Meunier, Stanislaus. Contributions paléontologiques. *Compt. Rend.* lxxxvi. p. 122. [1878.]

—. Mollusques nouveaux des terrains tertiaires parisiens. [New Parisian Tertiary Shells.] *Compt. Rend.* t. lxxxvii. p. 340. [1878.]

Ehlert, D. Sur le fossiles dévoniens du département de la Mayenne. [Devonian Fossils of Mayenne.] *Bull. Soc. Géol. France*, sér. 3, t. v. pp. 578–603, pls. ix. & x. [1878.]

Notes the fossils found in the quarries worked in almost vertical beds of Devonian Limestone interbedded with shales, chiefly at La Poupardière, but also in other localities.

The following new species are described and figured, besides some previously described :—

Cryphæus Jonesi, C. Munieri.

Primitia Fischeri.

Murchisonia Davidsoni, M. Davousti.

Platystoma? *janthinoidea*, P.? *naticopsis*.

Oriostoma Konineki, O. *echinatum*, O. *princeps*, O. *Gerbaulti*, O. *multistriatum*.

Bellerophon Barrandei.

Avicula Guérangeri.

Terebratula Gaudryi, T. Passieri, T. *Baconnierensis*.

Rhynchonella Le Tassieri.

Pentamerus Heberti.

Chonetes tenuicostata.

G. A. L.

Oustalet, E. Sur un Hémiptère de la famille des Pentatomides. *Bull. Soc. Philom. Paris*, sér. 6, t. xi. pp. 14–16. [1887.]

Cydnoptis Heeri is described.

Packard, A. S. Guide to the Study of Insects, and a treatise on those injurious and beneficial to crops. Ed. 4. 8vo. *Salem*, 1874. Ed. 6, 1878.

Refers to geological distribution, and discusses the fossil species, figuring some.

Rutot, A. Description de la *Rostellaria robusta*, Rutot, fossile de l'argile de Londres, et de l'étage Bruxellien des environs de Bruxelles. *Ann. Soc. Mal. Belg.* t. xi. no. 2, pp. 105-109, plates. [1877.]

Describes the above new species, and shows its distinctness from *R. macroptera* and *R. ampla*.

——. Quelques observations relatives aux conclusions de M. Lefèvre dans son rapport sur mon travail intitulé: "Description de la *Rostellaria robusta*, Rutot." *Proc.-verb. Soc. Mal. Belg.* t. vi. pp. ix-xviii. [1877.]

Discusses in detail the conclusions of M. Lefèvre.

Schlüter, Prof. C. Ueber einige aufgewachsenen Crinoiden von Spilecco. *Zeitschr. deutsch. geol. Ges.* Bd. xxvi. p. 957. [1874.]

——. [Cretaceous Crabs, Koenigslutter.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, Sitz. pp. 179, 180. [1878.]

A list.

Sladen, W. P. On the Genus *Poteriocrinus* and allied forms. *Proc. Geol. Soc. W. Riding Yorksh.* n. s. pt. iv. pp. 242-253, pl. x. [1878.] [Entered by mistake in the GEOLOGICAL RECORD for 1877, p. 319.]

Zeacrinus Phillipsii is proposed for crinoid arms figured by Phillips.

Stöhr, E., and — Schwager. Studio sur Foraminiferi dei dintorni di Girgenti. [Foraminifera of the Neighbourhood of Girgenti.] Pp. 37, plate. 8vo. *Rome*, 1878.

Tiberi, N. Specie viventi Mediterranee e fossili terziarie italiane. *Bull. Soc. Mal. Ital.* vol. iv. p. 136. [1878.]

——. Mollusques marins d'Italie. Céphalopodes, Ptéropodes, Hétero-podes vivants de la Méditerranée et fossiles des terrains tertiaires d'Italie. *Ann. Soc. Mal. Belg.* t. xii. [1878.]

Tournouër, —. Etudes sur le fossiles tertiaires de l'île Delos. [Tertiary Fossils of Delos.] *Ann. Sci. Ecole Norm.* p. 29. [1876.]

Volxem, C. van. Note critique sur l'interprétation donnée par M. de Borre d'une . . . empreinte fossile, celle du *Pachytylopsis Per-senarei*. *Ann. Soc. Entom. Belg.* t. xix. pp. 28-34. [1876.]

The wing may be Orthopterous, but is certainly not Acridian, and nothing in common with *Pachytylus*. See the GEOLOGICAL RECORD for 1875, p. 298.

Westwood, J. O. [Supposed Caterpillar from English Coal Measures.]
Ann. Soc. Entom. Belg. t. xx. pp. iv, v. [1876.]

Translation (by J. L. Weyers) of a paragraph in Brodie's work (1845)
on Secondary English Insects: the fossil is known to be a Myriapod.

Weyenbergh, H. *Varia zoologica et palæontologica. Périod. Zool.*
t. i. pp. 77-111, pls. 2, 3. [1874.]

Describes 6 fossil insects from Solenhofen, and gives a list of Secondary
Insects from Bavaria.

Whitfield, R. P. Remarks on some Lamellibranchiate Shells of the
Hudson River Group, with descriptions of four new species. *Journ.*
Cincinnati Soc. Nat. Hist. vol. i. pp. 137-141; part of plate. [1878.]

——. Preliminary descriptions of new Species of Fossils from
the lower geological formations of Wisconsin. *Ann. Rep. Geol.*
Surv. Wisconsin for 1877, pp. 50-89.

Describes the new genus *Scævogyra*, with three species; also species
of *Ellipsocephalus*, *Bellerophon*, and *Triplexia* from the Potsdam sand-
stone. W. H. D.

Woods, Rev. J. E. T. Australian Corals. *Proc. Linn. Soc. New South*
Wales, vol. ii. p. 292. [1878.]

Australian living forms show that some of the fossil forms thought to
be extinct are still living.

See also:—

Barrett, Dr. S. T. New Niagara Fossils: p. 152.

Blake, Prof. J. F. Nomenclature of *Inocerami*: p. 4.

Branco, Dr. W. New Jurassic Shells: p. 48.

Calvin, Prof. S. New Devonian Brachiopoda: p. 154.

Capellini, S. New Tertiary Shells: p. 50.

Conrad, T. A. New Cretaceous and Eocene Shells: under **Kerr**,
p. 164.

Etheridge, R. New Brazilian Tertiary Shells: under **Brown**, p. 135.

Etheridge, R., Jun. *Unio*, N. S. Wales: under **Baker**, p. 202.

——. Queensland Fossils: p. 203.

Fontannes, —. New Jurassic Ammonite: under **Potier**, p. 95.

McCoy, Prof. F. Silurian Mollusca and Tertiary Fossils, Victoria : p. 302.

Marinoni, Prof. C. New *Dentalium* : p. 84.

Pantaneli, Dr. D. New Miocene Shells : p. 91.

Roemer, F. New *Archæocyathus* : under **Macpherson**, p. 83.

Scudder, S. H. New Tertiary Insects : under **Selwyn**, pp. 146 and 173.

Sollas, Prof. W. J. New Silurian Shells : p. 31.

Vacek, M. New Cretaceous Shells : p. 115.

Vidal, M. New Cretaceous Fossils : p. 130.

Vogdes, A. W. New *Calymene* : p. 149.

Walcott, C. D. New Fossils of Utica Slate : p. 149.

Wallace, S. J. New Sponges (geodes) : p. 176.

White, Dr. C. A. New American Cretaceous Fossils : under **Hayden**, p. 140.

Whiteaves, F. New Jurassic Fossils : under **Selwyn**, p. 172.

——. New *Lingula* : p. 177.

Woodward, Dr. H. New Eocene Crustacea : p. 36.

3. PLANTS.

Sub-Editor W. CARRUTHERS, F.R.S., F.G.S.

Andrae, Prof. Ueber die systematische Stellung und Umgrenzung der Pflanzengattung *Sphenophyllum* aus der Steinkohlenzeit. *Verh. nat. Ver. preuss. Rheinl. Jg. 36, Sitz.* p. 293.

——. Ueber *Sphenopteris Stradonitzensis* und *S. obtusiloba*. *Verh. nat. Ver. preuss. Rheinl. Jg. 37, Corr.* p. 103.

Boulay, —. Recherches de Paléontologie végétale sur le terrain houiller des Vosges. Pp. 48; map. 8vo. *Paris*.

——. Recherches de Paléontologie végétale dans le terrain houiller du nord de la France (concession de Bully-Grenay). Pp. 68; 2 plates. 8vo. *Brussels*.

Bouvet, G. L'*Eopteris Morieri*, Sap., dans les carrières près d'Angers. *Feuille des Jeunes Naturalistes*.

Conwentz, Dr. H. Ueber ein miocänes Nadelholz aus dem Schwefelgruben von Comitini bei Girgenti. [Miocene Conifer, Girgenti.] Pp. 3. 8vo. *Breslau*.

Crié, Aug. Flore comparée des terrains siliceux et calcaires de Sillé-le-Guillaume et de Conlie. *Bull. Soc. Agr. Sci. Sarthe* for 1878.

Crié, L. Filiation des Cycadites de la Sarthe dans les temps géologiques. *Bull. Soc. Agr. Sci. Sarthe*.

——. Les anciens Climats et les Flores fossiles de l'ouest de la France. Pp. iv, 80; fig. 8vo. *Rennes*.

Dawson, [Sir] J. W. The Genesis and Migrations of Plants. *Princeton Review*, pp. 277-294.

The place of origin of the successive floras of the northern hemisphere was the Arctic Regions. The various theories of the cause of change of climate in those regions are referred to, and that dependent on the varying distribution of land and water is adopted. W. W.

Engelhardt, H. Ein Beitrag zur Kenntniss der Flora des Thones von Preschen bei Bilin. *Verh. k.-k. geol. Reichs.* pp. 296, 297.

Engler, A. Versuch einer Entwicklungsgeschichte des Pflanzenwelt.
1. Der extratropischen Florengebiete der nördlichen Hemisphäre.
Pp. 202; plate. 8vo. *Leipzig.*

Ettingshausen, Dr. C. Baron. Report on Phyto-Palæontological Investigations on the Fossil Flora of Sheppey. *Proc. R. Soc.* vol. xxix. pp. 388-396.

Gives a list of fruits and seeds found in the London Clay, and discusses their relation to other floras, recent and fossil.

Feistmantel, Karl. Ueber die Nöggerathien und deren Verbreitung in der böhmischen Steinkohlenformation. *Sitz. k. böhm. Ges. Wiss.* pp. 75-80.

—. Ueber *Cyclocadia major*, Lindl. et Hutt. *Verk. k.-k. geol. Reichs.* pp. 226-230. See also *Sitz. k. böhm. Ges. Wiss.* 23 May.

—. Eine neue Pflanzengattung aus den böhmischen Steinkohlenschichten. *Sitz. k. böhm. Ges. Wiss.* pp. 298-303

—. Beitrag zur fossilen Flora der böhmischen Steinkohlenbecken. *Lotos.*

Feistmantel, Dr. Ottokar. Palæontologische Beiträge. III. Paläozoische und Mesozoische Flora des östlichen Australien. [Palæozoic and Mesozoic Flora of E. Australia.] *Palæontographica*, Suppl. iii. Lief. iii. Heft 4, pp. vii, 133-195, pls. xix., xx.

Remarks on the affinities, &c. of many species, *Rhacopteris septentrionalis*, *Archæopteris Wilkinsoni*, and *Glossopteris elegans*, all from Carboniferous beds, being new. W. H. D.

—. Notes on the Fossil Flora of Eastern Australia and Tasmania. *Geol. Mag.* dec. ii. vol. vi. pp. 485-492.

A notice of the Palæozoic and Mesozoic forms.

—. Flora of the Jabalpur Group (Upper Gondwanas) in the Son-Narbada Region (India). Pp. 39; 14 pls. 4to. *Calcutta.*

—. Fossil Flora of the Gondwana System. *Palæontologia Indica*, ser. 2, vol. i. pt. 4: Upper Gondwana Flora of the Outliers on the Madras coast, pp. 191-224, pls. i.-xvi. Date on titlepage of volume: *Calcutta*, 1880.

The following new species are described:—

Cycadites conferta, *Morris.*
— *rajmahalensis*, *Oldham.*
— *Blandfordianus*, *Old.*
Pteryphyllum distans, *Mor.*
— *Hislopianum*, *Old.*
— *Falconerianum*, *Mor.*
— *Morrisianum*, *Old.*

Pteryphyllum Medicottianum, *Old. & Mor.*
— *Carterianum*, *Old.*
— *princeps*, *Old. & Mor.*
— *crassum*, *Mor.*
— *rajmahalense*, *Mor.*
Palæozamia bengalensis, *Old.*

Palaeosamia acutifolium, Mor.
 — *rigida*, Old.
Stangerites McClellandi, Old. & Mor.
 — *ensis*, Old.
Dictyopteris falcata, Mor.
Teniopteris lata, Old.
 — *muscfolia*, Old.

Teniopteris Morrisii, Old.
Pecopteris gleichenoides, Old. & Mor.
 — (?) *salicifolia*, Mor.
 — *indica*, Old. & Mor.
 — *macrocarpa*, Old. & Mor.
 — *lobata*, Old.
Cunninghamites dubiosus, Feist.

Feistmantel, Dr. Ottokar. The Fossil Flora of the Gondwana System (Lower Gondwanas), *Palæontologia Indica*, ser. 12, vol. iii. pt. i. 1879. The Flora of the Talchir-Karharbari Beds, pp. 1-48, pls. i.-xxvii.

The following new species are described :—

Pangamopteris (?) *buriadica*.
 — *major*.
Glossopteris decipiens.
Euryphyllum (n. gen.) *Whittianum*.
Glossopteris longicaulis.
Phyllothea robusta.
Dicksonia Hughesi.
Merianopteris major.
Angiopteridium infarcatum.
Glossopteris intermittens.

Glossopteris retifera.
 — *divergens*.
 — *damudica*.
 — *formosa*.
 — *orbicularis*.
Gangamopteris anthrophyoides.
Sagenopteris longifolia.
 — *polyphylla*.
Rhipidopsis densinervis.

Gardner, J. S. Are there no Eocene Floras in the Arctic Regions? *Nature*, xx. pp. 10-13.

Discusses the relations of M. Eocene Floras to Miocene, and the effect of past geographical upon former floras within the Arctic circle.

Gardner, J. S., and Baron C. Ettingshausen. A Monograph of the British Eocene Flora.—Part 1. Filices. *Pal. Soc.* vol. xxxiii.

Geinitz, Dr. Eugen. Die verkieselten Hölzer aus dem Diluvium von Kamenz in Sachsen. *Sitz. Isis Dresden* for 1878, pp. 192-197.

Describes the trunks, referred to *Fasciculites palmacites*, Cotta. H. Conwentz describes the microscopical structure, giving woodcuts.

Geinitz, H. B. Ueber Reste der Steinkohlenformation von Lugau in Sachsen. *Sitz. Isis Dresden*.

—. Ueber zwei neue Kreidepflanzen. *N. Jahrb.* p. 113 and plate.

Gentil, —. Rapport sur deux thèses de M. Louis Crié:—I. Flore des grès éocènes du Mans et d'Angers; II. Etude sur les Dépazées. *Bull. Soc. Agric. Sci. Arts Sarthe*, 3^e et 4^e trim. (1878).

Geyler, H. T. Notiz über die Tertiärflora des Zeilthales. *Jahrb. Senckenb. nat. Ges.*

Gilkinet, —. Du développement du règne végétal dans les temps géologiques. *Bull. Ac. R. Belg.* sér. 2, t. 48, pp. 814-834.

- Göppert, Dr. H. R.** Sull' ambra di Sicilia e sugli oggetti en essa rinchiusi. *Atti R. Ac. Linc. ser. 3, Mem. vol. iii.* pp. 56-62.
Principally on the vegetable inclusions, a leaf of *Laurus Gemellariana*, n. sp., being described and figured.
- . Ueber Drehwüchsigkeit und Drehsucht fossiler Nadelhölzer. *Schles. Ges. vaterl. Cult.*
- . Ueber Kohlenbildung auf trockenem Wege bei Gewöhnlicher Temperatur. *Jahresb. Schles. Ges.* p. 186.
- Grand'Eury, —.** Feuilles et chatons des Calamodendrées. [Leaves and Catkins of *Calamodendrophyllyum*.] *Compt. Rend. Assoc. Franc.* sess. 7, pp. 578-580.
- Heer, Prof. O.** Ueber die Sequoien. *Gartenflora*, pp. 6-10.
Monograph of the genus, recent and fossil, the first species being Urganian.
- Hosius, Prof.** [Westphalian Cretaceous Flora.] *Verh. nat. Ver. preuss. Rheinl.* Bd. 36, *Corr.-Blatt*, pp. 65-75.
- Hutchinson, P. O.** Fossil Plants discovered near Sidmouth. *Trans. Devon. Assoc.* vol. xi. p. 383-5, plate.
Calls attention to the occurrence of a stem of a plant in the New Red Marl.
- Kaiser, P.** *Ulmoxylon*, ein Beitrag zur Kenntniss fossiler Laubhölzer. *Zeitschr. ges. Nat.* Bd. lii. pp. 88-100.
- Krejci, J.** [Notice of the remains of Land-plants in the Silurian Formation in Bohemia.] *Sitz. k. böhm. Ges. Wiss.* pp. 201-204.
- Kusta, J.** Verkieseltes Holz in der Wittingauer Tertiärebene. *Verh. k.-k. geol. Reichs.* pp. 337, 338.
Refers to silicified wood of *Araucarites* found in the Tertiary plain of Wittingau.
- Lesquereux, Leo.** Atlas to the Coal Flora of Pennsylvania and of Carboniferous Formations throughout the United States. *2nd Geol. Survey of Pennsylvania*, 87 pls.
Figures 260 species, 122 for the first time. The descriptive text will form a separate volume.
- . On Cordaites bearing fruit. *Proc. Amer. Phil. Soc.* vol. xviii. p. 222, pl. 3.
- . Notice of Gaston de Saporta's Work: The Plants of the World before the Advent of Man. *Amer. Journ.* ser. 3, vol. xvii. pp. 270-283.
Summary of the work noticed on p. 350.
- Miller, S. A.** Catalogue of Fossils found in the Hudson River, Utica Slate, and Trenton Groups, as exposed in Indiana, Ohio, and Kentucky. *10 Ann. Rep. Geol. Surv. Indiana*, pp. 35.

A description of many new forms referred to Algæ, and some to vascular Cryptogams from the Silurian.

Molon, F. Rapports synchroniques des flores tertiaires françaises avec celles des préAlpes Vénitiennes. *Compt. Rend. Assoc. Franç.* sess. 7, pp. 580-583.

Discusses the chronological relation of the Tertiary floras of France with those of N. Italy.

Morière, —. Sur les empreintes offertes par les grès siluriens dans le département de l'Orne et connus vulgairement sous le nom de "Pas de bœuf." *Compt. Rend. Assoc. Franç.* sess. 7, pp. 570-576.

Discusses the origin of certain footprint-like impressions on Silurian grits in the Department of the Orne; thinks the name *Bilobites* bad.

Mueller, Dr. F. von. Observations on New Vegetable Fossils of the Auriferous Drifts (continued). *Rep. Min. Surv. Reg. Victoria* for the Quarter ended 31st Dec., 1878, pp. 37-39, plates xvi., xvii.; (and) 30th Sept. 1879, pl. xviii. pp. 39, 40.

Describes and figures the following:—*Plesiocapparis megasperma* (n. sp.), Pliocene, near Gulgong; *Spondylostrobus Smythii*, near Georgetown, Tasmania (quotes a geological description of locality by Messrs. Johnston and Stockman), pp. 37, 38, pl. xvi. *Plesiocapparis leptocelyphus* and *Conchocaryon* (n. g.) *Smithii* (n. sp.), Pliocene, Gulgong, p. 39, pl. xvii. *Araucaria Johnstonii* (n. sp.), the Travertin, Geilston Bay, Tasmania, pp. 39, 40, pl. xviii. R. B. N.

Nathorst, A. G. Om floran i Skånes kolförande bildningar. I. Floran vid Bjuf. Häft 2. [Fossil Flora of the Coal-bearing Series of Scania, Sweden. I. Flora at Bjuf Colliery. Pt. 2.] *Sver. Geol. undersökn.* ser. C, no. 33, pp. 55-82, pls. xi.-xvii. 4to.

Description of a Fungus, of Filices 9 species, of Cycadaceæ 43 species; 47 are figured, the following being new:—

Xylomites intermedius.

Adiantites agnitus.

Protorhipis integrifolia, *P. crenata.*

Ptilozamites Carlsoni, *P. triangularis*,
P. acuminatus, *P. acutangulus*, *P.*
linearis, *P. falcatus.*

Pterophyllum affine, *P. irregulare.*

Pterophyllum? *pungens*, *P.*? *cteniforme*,
P.? *obsoletum*, *P.*? *confluens*,

P.? *stenorrhachis*, *P.*? *Oldhami*, *P.*?
falcatum.

Nilsonia pterophylloides.

Podozamites ensis.

Clathraria Saportana, *C. imbricata*,
C. minuta.

Cycadospadix integer, *C. attenuatus.*

Cycadeospermum striolatum, *C. lævigatum*, *C. pungens*, *C. impressum.*

E. E.

— Om *Spirangium* och dess en förekomst i Skånes kolförande bildningar. [*Spirangium* and its Occurrence in the Coal-bearing Deposits of Scania, Sweden.] *Åfv. K. Vet.-Akad. Förh.* Jg. 35. Also separately published: *Sver. Geol. undersökn.* ser. C, no. 36, 13 pp., 2 plates. 8vo.

Spirangium Quenstedti, *S. Münsteri*, and *S. Jugleri* described and figured (none new). Calls attention to the probable analogy with *Chara*. E. E.

Ottmer, J. Eine neue fossile *Chara*-Art. [New Fossil *Chara*.] *Jahresb. Ver. nat. Braunschweig*, p. 71. See *Journ. R. Micr. Soc.* 1881, p. 82.

Under the name *Chara Gebhardi* are described the spore-fruits (nucules) of a species from the Upper Kimeridge Clay of the Langenberg, near Oker. E. T. N.

Renault, B. Sur un nouveau groupe de tiges fossiles silicifiées de l'époque houillère. *Compt. Rend.* t. lxxxviii. pp. 34-36.

Describes a new group of Carboniferous plants, under the name of *Poroxyles*, and compares their structure with that of *Sigillaria* and *Diploxyton*. J. G. G.

——. Structure comparée des tiges de *Lépidodendrons* et de *Sigillaires*. [Comparative structure of the trunks of *Lepidodendron* and *Sigillaria*.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 564-569; *Nouv. Arch. Mus.* pp. 213-348, pls. x.-xvii.

Renevier, Prof. E. Steinkohlenflora in Unter-Wallis. *Bull. Soc. Vaud. Sci. Nat.* sér. 2, t. xvi.

Römer, F. A. Ueber eine Wallnuss aus dem tertiären Braunkohlenlager der George-Felix-Grube bei Weigersdorf unweit Görlitz. The walnut is named *Juglans lusatica*.

Rzehak, A. Fossile Pflanzen aus dem Mergelschiefer du Braunkohlen führenden Schichten von Zenica in Bosnien. *Verh. k.-k. geol. Reichs.* p. 171.

Five species of phanerogamous plants are recorded.

Sandberger, F. Die Braunkohlenformation der Rhön. *Berg-hütt. Zeitung*, nos. 21-24.

Lists of the plants found in the various divisions of this formation.

Saporta, Count G. de. Conifères ou Aciculariées. *Pal. Franç.* sér. 2. Terrain Jurassique. Livr. 28, 29 (t. iii.), fol. 24-29, pls. 58-73.

Describes and figures as new, *Pachyphyllum rigidum*, *P. araucarium*, *P. cirinicum*, *P. zignoi*; *Araucaria Moreauana*, *A. microphylla*, *A. Falsani*, *A. lepidophylla*. Discusses the taxonomy and the geographical distribution of recent conifers, and their relation to the fossil forms under notice. J. G. G.

——. Le Monde des Plantes avant l'apparition de l'homme. [The World of Plants before the Appearance of Man.] Paris.

Reviews the successive floras, analyzes the evolution theory, and indicates ancient geographical and climatic conditions as affecting plant-life. W. H. D.

Saporta, Count G. de. Essai descriptif sur les plantes des Arkoses de Brives, près le Puy-en-Velay. 8vo. *Le Puy*, 1878.

——. Types de végétaux paléozoïques nouveaux et peu connus. [Palæozoic Plants new and little known.] *Compt. Rend. Assoc. Franç.* sess. 7, pp. 576–577.

Tegillites, *Bilobites* or *Cruziana*, and *Eophyton*, and their possible nature, are reviewed.

Schmalhausen, J. Beiträge zur Juraflora Russland. *Mém. Ac. Imp. St. Pétersb.* sér. 7, vol. xxvii. pp. 96, pl. 16.

New species of *Phyllothea*, *Cyathea*, *Pecopteris*, *Ctenophyllum*, and *Gingko* are described.

——. Beiträge zur Juraflora Russlands. [Russian Jurassic Flora.] *Bull. Ac. Imp. St. Pétersb.* t. xxv. pp. 345–348.

Notes on the Jurassic flora of Kusnezsk, Altai, of Petschora Land, and of the Lower Tunguska.

——. Vorläufige Mittheilung über die Juraflora von Sibirien und dem Petschoralande. *Arch. Ges. Nat. Petersb.* x. p. 93.

Schmitz, F. Ueber einen Fruchtest aus der Steinkohlenformation. *Verh. nat. Ver. preuss. Rheinl.* Jg. 36, pp. 292, 293.

A gymnospermous fruit described, its affinities examined.

Shrubsole, W. H. Diatoms in London Clay [Sheppey]. *Nature*, vol. xxi. p. 132.

Sieber, J. Ein Beitrag zur Kenntniss der Flora der Diatomaceenschiefer von Kutschlin bei Bilin. *Verh. k.-k. geol. Reichs.* pp. 241–243.

Seventeen species of flowering plants and a new species of *Hydrangea* are recorded.

Sordelli, Ferdinando. Sulle Piante Fossili recentemente scoperte a Besano circondario di Varese. [Fossil Plants from Besano, Varese.] *Atti Soc. Ital. Sci. Nat.* vol. xxii. pp. 81–94.

Describes 3 plants from Triassic slates, *Voltzia callistachys* and *V. Besanensis* being new. Ichthyosaurian remains occur with them.

——. Le Fillite della Folla d' Induno presso Varese e di Pontegana tra Chiasso e Balerna nel Canton Ticino paragonate con quelle di altri depositi Terziari e Posterziari. [Fossil Leaves of Varese and Balerna.] *Atti Soc. Ital. Sci. Nat.* vol. xxi. pp. 877–899.

Describes this Pliocene flora, comparing it with that of other Tertiary and Post-tertiary deposits. From the Post-tertiary beds he finds a new species of *Pinus*, near *P. strobus*, a new *Castanea*, between the Tertiary *C. Kubingi* and the recent *C. vesca*, and a new *Rhododendron*. W. C.

Staub, Dr. Moriz. Die fossilen Plumeria Arten. *Termész. Füzet.* köt. iii. sz. 1, pl. iii.

Describes *P. austriaca* from L. Neogene.

——. A fossil Plumiera fajok. *Termész. Füzet.* vol. iii. pp. 6, pl. i. Two Tertiary species are described, and their affinities investigated.

——. *Carya costata* in der ungarischen fossilen Flora. *Földt. Közl.* 1879, p. 8.

——. Fossil Krappfpflanze. [Fossil Madder, from Trachyte-tuff, Hungary.] *Földt. Közl.* p. 166.

Description of *Rubiocites Hofmanni*, a new species.

Sterzel, J. T., and E. Weiss. [Note on *Palæojulus dyadicus*, Gein.] *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. pp. 204, 205.

Sterzel, T. [Organische Reste in unteren Porphyrtuff.] *Geol. Spezialk. k. Sachs.*—Section Hohenstein, pp. 39.

Species of Equisetaceæ and Filices found in three beds of Triassic age.

——. Tabellarische Uebersicht über die im Beharrlichkeitschachte bei Grüns gefundenen Pflanzenreste. *Geol. Spezialk. k. Sachs.*—Section Hohenstein, pp. 58, 59.

Streng, A. Ueber die Pflanzenreste im Eisensteinlager von Bieber bei Giessen. *Ber. Oberhess. Ges. Nat.* Bd. xviii. p. 143.

Several species of existing trees detected in this deposit.

Tieghem, Van. Sur le ferment butyrique (*Bacillus amylobacter*) à l'époque de la houille. *Compt. Rend. t. lxxxix.* pp. 1102–1104; and *Ann. Bot.* vol. ix. pp. 381, 382.

Valle, —. Legno silicizzato dell Istria. [Silicified Wood of Istria.] *Boll. Soc. Adr. Sci. Nat.* vol. iv. no. 2.

Weiss, Ch. E. Bemerkungen über die Fructification von *Næggerathia*. *Zeitschr. deutsch. geol. Ges.* Bd. xxxi. p. 111.

He considers it belongs to Ophioglossaceæ.

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Considered to be the same species.

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An examination of the relation of these plants.

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Treats of the structure and the relations of *Calamites*, *Asterophyllites*, *Lepidodendron*, *Sigillaria*, and their allies.

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A review of the work of Prof. Whitney on the above subject, quoted from the *Science News*.

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T. V. H.

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W. K.

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Contains:—Fireclay, by **G. Maw**; Gems, by **A. S. Murray**; Geology by **Prof. A. Geikie**; Gold, by **W. C. Roberts** and **H. Bauerman**.

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Notes on maps, models, and specimens, illustrating mode of occurrence and working of mineral deposits in Austria, Spain, Algeria, Italy, Sardinia, Greece, Russia, and Siberia. **W. H. D.**

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Contains:—Petroleum by **Prof. Schweitzer**, and Mosaic Cosmogony by **Prof. Meyrowitz**.

Report of the Committee on Questions of Geological Nomenclature.

Cincinnati Nat. Hist. Soc., and 10 *Ann. Rep. Geol. Survey Indiana*.

Signed by **S. A. Miller**, **F. Braun**, **J. Mickleborough**, **J. W. Hall, jr.**, **E. O. Ulrich**, **A. G. Wetherby**, **G. W. Harper**, **P. Mohr**, **C. B. Dyer**, and **R. M. Byrnes**.

In S.E. Indiana the only L. Silurian rocks are Hudson River beds, in S.W. Ohio, the same (except Utica slate) at, and Trenton limestone E. of, Cincinnati. The term 'Cincinnati group' should be dropped as misleading. (From *Amer. Journ.* notice.) **W. H. D.**

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MAPS AND SECTIONS.

Sub-Editor C. DAVIES SHERBORN, F.G.S.

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Finland. *Finlands Geologiska Undersökning.* Scale 1 : 200,000. Kartbladet 1 [District between Karuma, Koskis, Dragsfjärd, and Ekenäs] and text. 8vo. *Helsingfors*, 1879. 48 pp. Map and text by **Ad. Moberg.**

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* Preoccupied by *M'Coy*, 1844, for a Brachiopod.

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 — jugosa & neglecta, *James*, *Sil.*, 324.
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